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OF
THE MEDICAL SCIENCES.

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THE

BIRMINGHAM MEDICAL REVIEW.

JULY, 1893.

ORIGINAL COMMUNICATIONS.

ON THE TREATMENT OF TALIPES CAVUS.*

BY WILLIAM THOMAS, F.R.C.S.,
SURGEON TO THE ORTHOPÆDIC HOSPITAL.

Talipes Cavus has received perhaps less attention from Orthopædic Surgeons than any other deformity of the foot, and in some manuals devoted to this branch of surgery it is not even mentioned. Possibly this may be due to the fact that it is rarely developed very early in life, that the deformity it gives rise to is more easily concealed, and that it is comparatively infrequent. It is often a very painful condition, interfering seriously with locomotion, and presenting difficulties in treatment quite as great as are met with in other forms of club-foot; and certainly with as great a tendency to relapse as any. I have therefore thought that a few remarks on the treatment of this deformity might lead to an interesting discussion, and that the comparison of experiences thus brought out may not be unprofitable.

In a well-marked case we find the following features:—The arch formed by the tarsus and metatarsus is abnormally increased, so that the dorsum of the foot has a humped appearance; the hollow on the under surface is exaggerated, and although sometimes the outer border touches the ground it is only by incurving the foot so as to produce a certain amount of varus. The metatarso-phalangeal joints are enlarged, especially that of the hallux, and the toes are flexed so that their tips only touch the ground. Callosities are usually present all along the under surfaces of the metatarso-phalangeal joints. The plantar fascia is found to be exceedingly tense, and the extension forwards of the toes in walking or standing is seriously interfered with if not entirely prevented. The deep flexor tendons are contracted and can be felt firm and cord-like beneath the plantar fascia; the muscles of the sole of the foot share in the general shortening and actively resist extension, and altogether there is a general rigidity and want of elasticity, especially when the foot is planted firmly on the ground. The tendons of the extensors draw back the flexed toes and cause the phalangeal joints to project in a manner specially adapted to produce corns. With all these conditions it is not surprising that tarsalgia should be such a frequent accompaniment, and the wonder is how the patient can walk at all.

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* Read at a meeting of the Midland Medical Society.

I have never yet seen a congenital case, but have occasionally been told that the patient was born so; so that looking for the causes of talipes cavus we are met by the important fact that the condition in a large proportion is acquired, but how acquired is not very apparent; possibly the rheumatic or gouty diathesis may be a constitutional factor of importance, but ill-fitting boots which compress the toes and do not allow for proper expansion are much to blame, as by their presence the muscles of the sole of the foot contract to keep the toes from pressing forward, and the plantar fascia does not grow in proportion to the rest of the foot.

In a small proportion of cases the condition is congenital, and is sometimes considered as one of the points of blue blood. There is, however, a very marked difference between the highly-arched instep and true cavus. The former is not attended by callosities and the generally contracted state of the toes presented by the latter. There is also a decided contrast in the character of the arch in the two conditions, and the lumpiness of cavus is easily distinguished when present.

Treatment.—As the surgical treatment of talipes cavus is usually of a prolonged character it is not wise to promise much or to prophecy until certain knowledge is obtained, and before proceeding to use surgical measures—every effort should be made to do without them. Attention should be given to see that the patient wears properly fitting boots, which ought to have plenty of room for the toes to stretch forward, and with soles arranged to distribute the pressure as equally as possible along the under surface of the foot. It is important to remember during this treatment that a boot soon becomes too short for the lengthening foot and that frequent renewals are absolutely necessary. To diminish the expense of so many changes sandal shoes without any uppers may be worn with much advantage, but in all cases the arched sock to support the foot and equalise the pressure must be insisted on.

Manipulation of the foot should be carefully carried out, and the amount of force required to extend the foot is considerable. At night the foot ought to be firmly bandaged to sole splints. Where tarsalgia is severe relief is often obtained by the administration of salicylate of potash, or sometimes by the inunction of oil or lanolin. When careful trial of the above-mentioned measures is not successful, but the foot remains contracted, callosities painful and tarsalgia frequent or continuous, complete division of all tight structures in the sole of the foot and immediate extension is the only treatment of any service; and it is the manner of doing this which has been one of my reasons for bringing this subject forward in order that I might start discussion as to the advantages or disadvantages of the open or subcutaneous method of operating.

During the last two years I have frequently practised both methods, reserving the open method for the more severe cases. The ordinary subcutaneous operation requires no description; the only remark I have to make about it is, that I prefer multiple punctures for separate tight bands to the attempt to divide several through one incision, and that I entirely dissent from the subcutaneous division of all structures in the sole of the foot indiscriminately, both because I consider it bad surgery and because the after-contraction is likely to make the foot as bad as before.

The open mode of operating is as follows:—An incision about one inch and a half long is made over the inner border of the central piece of the plantar fascia, which is usually the tightest band; the fascia is separated from the skin of the sole rather freely. The central part of the fascia is then divided transversely but without cutting any of the muscular fibres of the flexor brevis digitorum beneath. By drawing outwards the muscular fibres of the flexor brevis digitorum the tendons of the long flexors may be reached and divided. Considerable force must be used to extend the foot, and some of the ligaments of the sole may also require division. With the finger in the wound any other tense bands may be felt for and divided. The tendon of the abductor pollicis I usually divide subcutaneously near its insertion. All tight structures having been divided and the foot well stretched the wound is stitched and the foot firmly bandaged to a flat sole splint. As soon as possible the patient is encouraged to walk upon the foot, and when resting, the foot is kept firmly bandaged to the flat splint, which ought not to be left off for two or three months. After the operation frequent stretching and manipulation should be practised. Careful attention to boots or shoes will complete the cure.

What advantages does the open method give over the subcutaneous? It is a rather more severe operation, and unless better results are obtained ought not to be adopted. I was led to the practice of it after noting many failures from the ordinary mode.

The advantages are—

1. The Surgeon is able to divide all that is necessary and nothing more.

2. There is no bleeding into the areolar tissue of the sole.

3. As no muscular fibres are divided, the risk of after-contraction, from a cicatrix in the muscular tissue is avoided. This I consider to be one of the most important, if not the most important advantage.

4. Deep contracted fibres, which cannot be felt through the

skin, are easily defined and divided, and complete division of the deep flexors is assured.

5. Although the wound takes a little longer to heal, the absence of subcutaneous hæmorrhage renders manipulation less painful.

From my own personal observation, as yet, I cannot say how far clinical experience will bear out the advantages mentioned above. I can only say that in the cases which I have operated on by the open method, I have been better satisfied with the results; but as I have not been accustomed to perform the operation until about three years ago, I do not think the time is long enough to give a positive opinion. It is difficult to draw a fair comparison between the two operations when different patients are compared. In the following case I operated on one foot by the open, and the other by the subcutaneous method.

Miss M., a young lady æt. 21, was placed under my care for severe talipes cavus, which almost incapacitated her from walking from constant tarsalgia. The feet were about equally affected. In October, 1891, I operated on them by different methods. During the first few days the pain usually present on moving the foot after such an operation was hardly felt in the open wound, but at the end of a week there was very little difference between the two. Great improvement resulted in both; but a good deal of pain remained for some weeks after the operation, especially in the subcutaneous case.

Last month, about a year and a half after the operation, I examined the feet. In both the shape was normal, and walking was easy and painless; but in the one treated by the open method there was some cicatricial adhesion of the skin to the fascia beneath, which she said was sometimes painful.

I have selected this case because it is the only one in which I have noticed any such adhesion follow the operation. Altogether I have operated on ten cases by the open method. The number is too small to generalise from, but I am so well satisfied with the results that I should always adopt it in severe or even moderately severe cases.

NOTES ON THE AFTER-TREATMENT OF CASES OF ABDOMINAL SECTION.

BY CHRISTOPHER MARTIN, M.B. EDIN., F.R C.S. ENG.
SURGEON TO THE BIRMINGHAM AND MIDLAND HOSPITAL FOR WOMEN.

(Continued from page 101, vol. xxxiii.)

ON THE USE OF THE DRAINAGE TUBE.

THE value of drainage in abdominal surgery is admitted by all authorities, although considerable difference of opinion exists as to the class of cases in which it is safe to do without it. There are certain cases in which no wise surgeon would think of inserting a tube; for example, after a simple straightforward ovariotomy, where there have been no adhesions or other complications. There are other cases where the patient's only chance of recovery depends on its intelligent use.

I consider it necessary to drain the peritoneal cavity—

1. Where there is peritonitis or ascitic effusion.
2. Where during the operation the peritoneum has been soiled with fæcal matter, urine, pus, or offensive contents of tumours.
3. Where the abdomen has been washed out.
4. Where extensive adhesions have been broken down.
5. Where, from any cause, free oozing of blood is taking place into the peritoneum.
6. Where there is reason to believe the bowel or bladder has been injured.

It is a wise precaution to insert a tube where, even though there be no hæmorrhage at the close of the operation, it is likely to occur afterwards. Thus, the surgeon may feel uneasy as to the security of the ligature on the pedicle; or he may have had to operate on a vascular organ, like the uterus, which is prone to bleed. In all doubtful cases my rule is to drain. I have never seen a case where, after inserting a tube, I have regretted doing so; and I have seen numerous cases which, had they not been drained, would certainly have died.

The Tube.—The form and material of the tube deserve attention. It must be of stout tough glass, strong enough to resist the great pressure to which it is submitted during the violent retching that so often follows the operation. It should be perfectly straight, and maintain the same diameter (nearly half an inch) from top to bottom. It should be open at the lower end, and not rounded like a test tube. The sides should be perforated at frequent intervals, the holes being nearly a line across, and extending almost to the top of the tube. The upper end of the tube should be turned out into a circular lip or flange an inch in diameter. The tube should be of such a length that when the lower end reaches to the bottom of the pouch of Douglas the circular rim sits easily on the skin.

Its Functions.—

1. It acts as a sentinel indicating the onset of severe internal hæmorrhage in time for its prompt treatment. It is especially needed in cases where vascular adhesions have been dealt with, where the pedicle has not been ligatured satisfactorily, or where some very vascular organ, such as the uterus, has been operated on.

2. It is a potent hæmostatic, checking free oozing by enabling the blood effused to be at once removed, and by admitting air to the raw surface and keeping it more or less dry. If necessary, astringent solutions may be injected down the tube in order to act directly on the source of bleeding.

3. It prevents peritonitis by the removal of fluid—blood, pus, serum, or tumour contents—which, if allowed to remain, would probably undergo septic changes and excite a fatal peritonitis. Where there is a risk of fæcal extravasation, as when a hole has been torn in the rectum, it is simply invaluable.

4. It is a curative agent in peritonitis with effusion, and in ascites due to tubercular disease or papilloma of the peritoneum.

The Use of the Sucker.—Some surgeons do not advise clearing the tube by means of a "sucker." They merely lay a sponge or pad of absorbent tissue over the mouth of the tube, and trust to the fluid finding its way to the surface. Where the fluid is ascitic, a sucker may sometimes be dispensed with; but if it be bloody, the tube is very apt to become choked with clot, and rendered useless for the purposes of drainage. The use of the sucker is advisable in all cases where a tube is used. Mr. Tait's sucker is the best yet devised. Should clots collect in the tube and plug it, they must at once be removed by the sucker. Should this fail to extract them, the tube may be cleared by the use of a Playfair's probe ensheathed in clean absorbent wool. In cases of free hæmorrhage into the peritoneum, the nurse must drain the tube by means of the sucker very frequently—in bad cases every five minutes. As the loss diminishes it should be done at longer intervals.

The sucker may also be used to inject various solutions into the peritoneum. It is sometimes advisable to inject a weak solution of perchloride of iron into the cavity to try and check bleeding from deep pelvic adhesions.

The track of the tube usually becomes quickly shut off from the general cavity by the formation of peritonitic adhesions. This isolation of the track is of great advantage in those cases where a hole has been torn in the rectum, as sometimes happens during the removal of a very adherent pyosalpinx. In such cases a glass drainage tube of large diameter should be inserted, so that its lower end covers the rent. The patient must be given full doses of morphia, kept rigidly on her back, and not allowed to move. In from twenty-four to forty-eight hours the track of the tube will be quite shut off from the general cavity. Should fæces now pass through the rent, they will escape to the surface by the tube and not infect the general peritoneum. The fæcal fistula thus formed heals after the removal of the drainage tube, although the process of closure is often a very slow one.

The surgeon may not be aware that he has wounded the bowel until either flatus or fæcal matter escapes through the tube. Sometimes it is only discovered when the nurse administers an enema and finds it welling up through the wound. Occasionally air will escape freely from the drainage tube, although there has been no possible wound of the intestine. In such cases it is only atmospheric air that has got into the peritoneal cavity during the operation, or has been sucked in by the subsequent retching and vomiting.

The Character of the Discharge.—I have already referred to the escape of flatus and fæcal matter. For some hours after the operation a varying amount of blood-stained fluid will be removed. In favourable cases this hourly diminishes, and finally becomes serous and scanty. If severe hæmorrhage occur, as from the slipping of the ligature, bright fresh fluid blood pours out copiously through the tube, clotting on the dressings and in the tube itself. From the character of this hæmorrhagic discharge the source of the loss may be diagnosed, its severity estimated, and the necessity or not of interfering determined.

If the operation has been for the evacuation and drainage of purulent collections, the discharge will continue to be purulent for some days. This need excite no alarm. But in cases where there has been no previous suppuration, the appearance of pus in the discharge is of very grave import if it occur within three days after the operation. Should it occur later—for example, on the sixth day—it is not such a serious matter. Where the discharge becomes offensive, the tube must be frequently syringed out with iodine water. Where this fails to subdue the fœtor, the drainage tube must be removed temporarily and the offensive cavity irrigated with iodine water, and a fresh drainage tube inserted. This irrigation may be repeated twice or thrice a day until the discharge becomes sweet. Where the serous discharge continues very profusely, as in the ascites of papilloma of the peritoneum, there should be no great hurry to remove the tube. On the third day, if the drainage tube cannot then be dispensed with, it ought to be changed for a clean one, the same size or slightly smaller. As soon as the discharge becomes serous and scanty, the tube may be removed altogether.

The Evils of the Drainage Tube.—Let us consider each of these in turn.

1. If it be retained longer than a few hours, it undoubtedly prevents primary union at the site of its insertion. After its removal, the aperture heals by granulation. At most, however, this means only a delay of a very few days.

2. If the drainage tube be retained many days, there will be a greatly increased risk of the subsequent formation of a ventral hernia. The site of the tube remains as the weak spot in the line of the cicatrix.

3. It may break during vomiting. This can only occur where a very thin fragile tube is used. I have had no personal experience of this accident, but I have heard of cases where it has happened.

4. If the tube used be too short and have no circular rim, it may slip wholly into the peritoneal cavity. When the nurse goes to drain the tube, she finds that it has disappeared and the wound has closed over it. To remove it, the surgeon must take out a stitch, pass his finger into the abdomen and feel for the tube. It is usually easily discovered and brought to the surface. Should this fail, an anæsthetic must be given, the abdomen re-opened, and a thorough search made for it. It is an accident that cannot happen if the tube be provided with a wide rim.

5. If too long a tube be inserted, the lower end rests on the rectum whilst a considerable portion projects beyond the skin. Should the binder or bandage be applied very tightly, the tube is made to exert injurious pressure on the rectum, and may even punch a hole in it. In applying elastic pressure to the abdomen, care must be taken to arrange layers of pads of cotton wool around the tube in such a way that no pressure is made by the binder directly on the tube.

6. The tendency of the omentum to protrude through the holes in the sides of the drainage tube is very remarkable. It becomes applied to the tube, and is forced by the intra-abdominal pressure through the perforations as a series of fatty

herniæ. Each of these projects into the lumen of the tube as a pear-shaped mass of fat, whose narrow neck is constricted by the margin of the hole. The venous return in each protrusion is obstructed, and it becomes congested, swollen, and finally strangulated. There may be only one such hernia, usually there are from three to five, and I have seen cases where every hole has been invaded, and the lumen of the tube completely choked with engorged omentum. Such a condition may arise at any time during the first twenty-four hours. It is recognised by the mooring of the tube. When the nurse turns the tube round—as she should do each time she drains it—she finds that after making one or two turns the tube becomes held. On reversing the twisting movement, it first becomes free and then again is held. If an attempt be made to withdraw the tube from the abdomen, it will be resisted.

To relieve the tube from its toils, the tube should be twisted round until it becomes fixed, and it should be retained in this position. This puts the omental protrusions on the strain, and tends to slowly draw them out of the holes. Should it fail, the surgeon should draw the tube slowly and steadily up towards the wound until the topmost hole with its omental hernia comes into view. This may be ligatured just beyond the tube, and snipped off with scissors. The other holes, as they come to the surface, are dealt with in like fashion until the tube is free. The exposed omentum is washed and returned to the abdomen, and a fresh drainage tube is inserted.

HÆMORRHAGE AFTER ABDOMINAL SECTION.

The chief risk the patient runs during the first twenty-four hours is that of hæmorrhage. The source and severity of the bleeding varies with the particular operation performed, but the signs and symptoms are the same, whether the bleeding be from the vessels of the liver, the mesentery, or the pelvis.

It will be convenient, in the present paper, to deal mainly with hæmorrhage as it occurs consecutive to ovariotomy—taking this as the type of all abdominal sections.

Ovarian tumours may be divided into two groups, (*a*) those with adhesions; (*b*) those free from adhesions. If after the removal of a non-adherent tumour severe hæmorrhage occurs into the peritoneum, it must come from the vessels of the pedicle. If there have been vascular adhesions it may come either from these or from the pedicle.

Hæmorrhage from adhesions.—In the earlier years of ovariotomy—in the days when the operation was the last resource and only undertaken after repeated tappings—desperate adhesions were common. Now-a-days patients are operated on as soon as the growth is discovered, and such adhesions are rare. But every now and then one of the old-fashioned cases turns up. There is scarcely any structure in the abdomen covered by peritoneum to which an ovarian tumour may not contract adhesions. These are frequently highly vascular and may contain vessels larger than those of the pedicle itself. I have seen clusters of tortuous veins, each as large as the femoral, passing from the tumour to the omentum. Visceral adhesions, such as those to the liver, intestine, and uterus, bleed freely when separated. Adhesions to the anterior abdominal wall are often extensive but rarely vascular. Those to the posterior abdominal wall and to the sides of the pelvis may bleed furiously.

During the progress of the operation the surgeon will control the hæmorrhage from these various sources *secundum artem*—using in different cases the ligature, forcipressure, sponge-pressure, Paquelin's cautery, and various astringents. He will, if possible, stop all bleeding before closing the wound. Frequently, however, where an extensive raw surface has been left by the separation of adhesions, the patient has to be put back to bed with free capillary hæmorrhage going on.

Hæmorrhage from the pedicle.—This may come about in several ways.

(*a*) The ligature may have been tied insecurely and slip. Surgeons often condemn the Stafford knot as untrustworthy. The knot is a perfectly safe one; and if it comes undone it is because it has been badly tied.

(*b*) In other cases, though the knot has been tied correctly the broad ligament slips from within its grasp. This is apt to occur where the pedicle has been cut too close to the ligature, or where the pedicle is very short and broad. Each act of retching or vomiting puts a strain on the broad ligament which tends to pull it out of the grip of the ligature.

(*c*) If the pedicle contain much non-striped muscle, or be œdematous, its tissue is apt to shrink and the ligature become loose.

(*d*) From various causes hæmorrhage may take place into the connective tissue of the pedicle below the ligature, forming an acute hæmatocele of the broad ligament. If this grows rapidly it tends to force the ligature up over the rest of the pedicle until it slips off altogether. The hæmatocele then bursts into the peritoneal cavity and the patient may rapidly become ex-sanguine. In other cases the ligature holds, but the broad ligament becomes distended with blood to such an alarming extent as to threaten life. A patient may bleed to death into her extra-peritoneal tissue.

Hæmorrhage from the abdominal wound.—This can only be serious in "bleeders." Patients suffering from hæmophilia, leucocythæmia, purpura, or advanced jaundice, are of course most unsuitable cases for a surgical operation. I once watched a patient, who had undergone the operation of removal of the spleen for leucocythæmia, slowly die from hæmorrhage, each stitch hole bleeding like a wounded vein.

THE SIGNS AND SYMPTOMS OF INTERNAL HÆMORRHAGE.

In those cases where a drainage tube has been inserted, the first sign of hæmorrhage is usually a stream of pure blood welling up through the tube and saturating the dressings. As fast as the nurse empties the tube with the sucker, it refills. It is impossible in such cases to over-estimate the value of the drainage tube. It is the sentinel which first warns us of the approach of danger. It reveals the onset of hæmorrhage in time to deal with it before it has gone too far. By its means we can gauge the rapidity and severity of the loss, and so decide the necessity or not of interfering. But to act efficiently, the tube must be kept free from clot by means of the sucker and Playfair's probe; otherwise active hæmorrhage may occur into the peritoneum, and yet no blood escape externally because of the plugging of the tube.

Where numerous vascular adhesions have been separated, there is usually for some hours a free discharge of bloody fluid. This is most severe immediately after the operation, and steadily becomes scantier and more watery. This loss need occasion no alarm. But if the discharge rapidly becomes brighter, thicker, and more copious, fresh fluid blood pouring into the tube as fast as this is emptied with the sucker, then active interference is indicated. But in the cases where the surgeon has not inserted a drainage tube the hæmorrhage is concealed. It is easy enough to diagnose hæmorrhage when the patient is blanched, gasping, and pulseless; but it is then too late. Her salvation depends on its *early* recognition. The nurse should know the signs and symptoms of hæmorrhage as she knows her alphabet. She must be constantly on the look out for them, and if she has only a suspicion of something wrong, should summon the surgeon.

In the early diagnosis of hæmorrhage I attach most importance to the pulse and temperature. If carefully recorded observations be taken frequently, it will be noticed that where bleeding is taking place the pulse steadily becomes more rapid and more thready, whilst the temperature falls. This progressive hourly rise in the pulse and fall in the temperature, occurring within a few hours of the operation, is almost diagnostic. An experienced nurse will detect bleeding at an early period by the "look" of the patient. There is an increasing pallor of the cheeks, a loss of colour of the lips, and a waxiness of the skin which she knows too well. As the hæmorrhage continues, the patient's breathing becomes quickened, the "air-hunger" becomes acute, she sighs and pants, and begs to be raised in bed. She becomes more and more restless, throws her arms about, and tosses off the clothes. She suffers from intense thirst.

On examining the abdomen, it is sometimes easy in thin patients to detect the presence of free blood in the peritoneum. If the blood be clotted, it is felt as a soft, boggy, ill defined fulness in the lower abdomen, dull on percussion. If it remain fluid, there will be dulness in the flanks, changing in position as the patient is turned from side to side. Distinct fluctuation may be made out. On vaginal examination, the soft boggy collection of blood may be felt filling the pouch of Douglas. In cases where a broad ligament hæmatocele forms, the physical signs are very definite. There is felt rising out of one side of the pelvis a tense, firm, fixed, dome-shaped mass, which may or may not exhibit fluctuation Per vaginam the same mass will be felt crowding the uterus forwards and to the other side of the pelvis, and limited sharply below by the pelvic fascia.

As the case goes from bad to worse, the patient becomes collapsed. The pupils are widely dilated, the forehead damp with cold sweat. The thready pulse, 160 or more to the minute, becomes uncountable and then imperceptible. The temperature falls to 95° F. or even lower, and the limbs become cold. Consciousness, which has been retained till now, becomes lost, the gasping for breath slowly ceases, and all is over.

But the surgeon must not wait for the development of the classic symptoms of hæmorrhage before he interferes, or he will wait too long. In cases where no drainage tube has been inserted, and where he has a suspicion that bleeding may be taking place internally, he should remove one or two sutures and push a glass drainage tube down to the bottom of the pouch of Douglas. If there be no bleeding, only a little blood-stained serum will escape; but if hæmorrhage be going on, the blood will at once well up freely through the tube. I have found this drainage-tube test, in cases of doubt, of great value.

TREATMENT OF HÆMORRHAGE.

There are few emergencies that more severely test a surgeon's judgment, courage, and resource, than a bad case of internal hæmorrhage after abdominal section. Face to face with a case the surgeon, in deciding on the line of treatment, must take into consideration the complications, such as adhesions, met with at the operation, and how they were dealt with, the character of the pedicle, the probable source of the hæmorrhage, the severity of the loss of blood, and the impression this loss is making on the patient's general condition.

Hæmorrhage from the pedicle.—If severe internal hæmorrhage takes place a very few hours after the removal of a non-adherent tumour, it is almost certainly due to the slipping of the ligature. The surgeon must without the least delay reopen the abdomen under chloroform, clear out the clot, and examine the pedicle. It is seen or felt not as a raised double fold of peritoneum, but as a large irregular bleeding area between the uterus and the brim of the pelvis. The peritoneal edges of this area should be rapidly seized with the forceps and pulled up towards the wound. In this way the broad ligament may be reformed. If possible it should be transfixed and re-tied with a strong ligature. Where this cannot be done the bleeding must be controlled by forcipressure. Apply one pair of Spencer-Wells' large forceps to the inner border of the broad ligament, close to the uterus. This compresses the uterine artery and its branches. Now apply another pair to the outer part of the broad ligament to control the ovarian artery. If the portion of the ligament between the two pairs of forceps still bleeds it may be grasped by Thornton's T-shaped forceps. Having stopped the bleeding now wash out the abdomen with plenty of warm water. This removes clots which if left might cause peritonitis. The water is partly absorbed by the blood vessels and so augments the volume of blood circulating. It is in fact a substitute for transfusion. The sutures are inserted and tied, the handles of the forceps being left projecting through the wound. They may be cautiously removed in about twenty-four hours. The surgeon must never undertake these "second operations" rashly, because they are terribly fatal. But whenever it *is* necessary to re-open the abdomen it should be done at once; time is all important.

Hæmorrhage from Adhesions.—If this be severe and not controlled by the use of the drainage tube and sucker, an abdominal compress must be firmly applied. The whole of the front of the abdomen should be covered with pads of cotton wool several layers deep, and disposed around the drainage tube so as to protect it from pressure. Folded towels are laid over the pads, and then over all a strong binder is applied very firmly. To increase the pressure, two or three pieces of broad elastic bandage may be fastened over the binder, and pulled as tight as possible. In addition, if the bleeding be from deep pelvic adhesions, the vagina may be firmly plugged, so as to compress the vessels from below. If compression fails to control the bleeding, a weak solution of perchloride of iron may be injected down the drainage tube into the pelvis. It is sometimes very effectual. If this does not succeed, the surgeon may have to re-open the abdomen as a last resource. He must wash out the clots, search for the source of the bleeding, and deal with it according to the general rules of surgery, using the ligature, forcipressure, sponge pressure, the cautery, or astringents, as may be necessary. In cases where there is alarming hæmorrhage from deep pelvic adhesions which other measures fail to control, the pelvic cavity should be firmly plugged with a long strip of iodoform gauze, the end of which is brought out through the abdominal wound. The vagina should also be tightly plugged at the same time, so as to exert counter-pressure on the bleeding vessels. The gauze may be cautiously removed in about forty-eight hours.

Extra-peritoneal Hæmorrhage.—If a broad ligament hæmatocele form, it should be left alone, as in ninety-nine cases out of a hundred the hæmorrhage ceases spontaneously, and the effused blood is slowly absorbed. Mr. Tait records a case where he re-opened the wound, opened the broad ligament, turned out the clots, and sponged out the cavity with an astringent. But cases requiring such measures are extremely rare.

General Treatment.—The foot of the bed should be raised, and in bad cases the arms and legs bandaged. Brandy and champagne may be given if the pulse be failing. Ether may be injected hypodermically in conditions of collapse. Small doses of morphia, given hypodermically, diminish the restlessness. The patient must be kept warm and wrapped up in blankets. In very severe cases I have seen excellent results from the injection into the rectum of a quart of a warm solution of common salt (one drachm to the pint). To assist the patient in retaining it, the rectum should be firmly plugged. If necessary, the injection may be repeated in three or four hours' time. It is quite as efficacious as intravenous injection, and not nearly so troublesome.

(To be continued.)

REPORTS OF CASES.

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A CASE FOR DIAGNOSIS.

BY F. EDGE, M.D., F.R.C.S, WOLVERHAMPTON.

On April 27th, 1893, I saw a case with Mr. Sainthill Pearse, upon which I subsequently operated with success, which since the publication of Mr. Barling's paper on Typhlitis and Appendicitis has seemed to me worthy of publication. The patient is an unmarried maidservant of 23 years of age, with a good family history, and no special previous ailments beyond anæmia and amenorrhœa for which she was treated two years ago. Since then she has had some pain at each menstrual period and sometimes has felt tired and short of breath. The last few menstrual flows were scanty. About the beginning of April she suffered from abdominal pain and general illness and had to lay up. The symptoms did not abate and severe gastric catarrh with quick pulse and a septic appearance followed. It was found that there was a firm mass dull on percussion spreading from the right iliac fossa into the pelvis and reaching the middle line in front. Per rectum a fluctuating swelling behind the uterus could be felt. It was thought best to make a complete examination under anæsthesia. This was done on April 27th. A very free discharge of bloody fluid from the uterus was taking place. The vaginal introitus was narrow, admitting one finger; the hymen was present but of small extent. Cervix was firm and conical, the uterine sound passed to a normal distance. The uterus was anterior and to the left. The posterior and right lateral fornices bulged into the vagina and gave a fluctuating cystic impression to the finger. Bimanually no definite structure could be made out, as the parts felt by the external hand seemed hard, firm, and irregular, and suggested matting of omentum and bowels together. The right inguinal and hypogastric regions were seen to be prominent. The mass extended half-way to the umbilicus in the right lateral line and was dull on percussion. The pulse was 120 per minute, and the tongue glazed, cracked, and very bright red. The temperature was 99° F. There was practically no bladder trouble. There was some obstinacy of the bowels but easily overcome, and nothing had been noticed in the fæces.

Seeing that medical treatment had not improved the condition of the patient, and deciding that whatever might be the pathology of the case there could be no doubt but that septic mischief existed in the abdominal cavity, I determined to make an exploratory incision and do what was indicated afterwards. The incision was median, and the parietal peritoneum was inflamed and so adherent to omentum that I went through the omentum at one point thus exposing the abdominal portion of the peritoneal cavity to infection. Grumous foul-smelling pus welled out. There was great matting with adhesions, and these had to be separated before the pelvic floor was reached. The uterus was perhaps enlarged. The condition still was doubtful. There was free oozing from the right broad ligament and the tube was enlarged and swollen. I removed the right tube and ovary and as much broad ligament as I could draw into the ligatures. This secured the bleeding points, which seemed to be due to tearing of adhesions and not to be the vascular internal surface of a cyst or pregnancy sac. The left tube and ovary were normal. The cavity was washed out with warm water and a drainage tube inserted to the bottom of the pouch of Douglas. The after history has been uneventful, the temperature not going above 100° F., and although there is still some slight discharge the patient is able to sit up and is taking a general diet with avidity. The abdomen is flat, no mass can be felt above the pelvis or in the right inguinal region, and on percussion it is not dull, so that all exudation has disappeared. On examining the removed appendages the tube was found to be swollen and inflamed; it contained a few drops of pus. The ovary contained a few small follicular cysts but nothing abnormal was discovered.

Here then we have a collection of pus which was chiefly broken down and disorganised blood, so that the term suppurating hæmatocele would apply to it. There was no distinct history of appendicitis, and there was no history as to where the swelling or mass was first felt. There was no fæcal odour from the pus and no escape of fæces, so that if the mischief arose in the iliac fossa it was more probably perityphlitis than perforation or appendicitis. Against its being an early extra-uterine pregnancy, there was no history of amenorrhœa; the vaginal introitus, if not virginal, certainly was as near that condition as one finds in many virgins, and so far as a character for piety and virtue go these were present in this case. Such a condition may follow gonorrhœa, and virginity is no bar to this, as many patients confess to men having attempted copulation with them without success, and this would be quite sufficient to infect the woman. There was no account of this here and everything against it. I am grieved to say that I did not examine for gonococci.

I may submit that the treatment of incising and draining the lowest part of the pus area was correct in any case. My reason for removal of the right appendages was the hæmorrhage, and because, during the operation, I was of opinion that I had to deal with a case of ectopic pregnancy which had escaped through the dilated internal mouth of the tube, in fact a tubal abortion followed by suppuration.

If the case is gonorrhœal there will be trouble in the left appendages, as this generally follows unilateral operation in gonorrhœal disease of the appendages when the seemingly healthy appendages of one side are left behind.

In the operation it was impossible to get an idea of the condition of the cæcum and appendix without separating dense adhesions, but from the rapidity with which all dulness and resistance has disappeared in their region it seems as likely that the suppuration extended to it from the pelvis as that the inflammatory mischief originated about the cæcum or appendix and descended into the pelvis.

TWO CASES OF OVARIOTOMY.

BY C. E. PURSLOW, M.D. (LOND.),
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C. S., æt. 46, admitted November 14th, 1892, with a swelling in the abdomen, which she had first noticed four months ago. Ten children and one miscarriage; last child twelve years ago. Menstruation regular, but more painful and less in quantity lately. Has had slight pain in abdomen and has lost flesh recently.

On Admission.—Abdomen is distended by a tumour reaching up to midway between umbilicus and ensiform, extending a little more to right of median line than to left. There is distinct thrill, and fluctuation is more marked on right side, whilst on the left side of the tumour there is a solid mass. The greatest measurement, which is one inch below umbilicus, is 36 inches. On vaginal examination, a tense swelling can be felt in front of the cervix. Patient is a spare woman, and all the other organs appear to be sound.

Operation.—November 19th. Patient anæsthetised by chloroform, and abdomen opened in median line by three-inch incision. Tumour, which lay immediately under incision, tapped by trocar, and contents of larger cyst evacuated. Trocar then pushed on to break up smaller cysts, and mass drawn from abdomen. Pedicle, which was about one inch in diameter, tied by Staffordshire knot, and wound closed by six silk sutures.

As no fluid appeared to have escaped into peritoneal cavity, no flushing or drainage-tube was used. The fluid, which was of mucilaginous consistence, measured 169 ounces, and the solid matter weighed 31 ounces. Patient made an uninterrupted recovery. She had little pain and no vomiting. Temperature never rose above 100° F. The stitches were removed on December 7th, she got up on December 12th, and left the hospital well on December 28th.

A. L., æt. 32, sent to the Queen's Hospital by Mr. Hawley, Coventry. Admitted February 20th, 1893, complaining of a large swelling in the abdomen, which she had first noticed four months previously, after her confinement, since which time it had rapidly increased in size.

On Admission.—The abdomen is greatly distended and skin very tense; umbilicus protruded. Dulness, with distinct thrill all over abdomen, with exception of extreme flank. Circumference at umbilicus, 43¾ inches. On the left side there is a small hard mass.

Operation.—February 25th. Abdomen opened in middle line by four inch incision. On opening peritoneum, the cyst wall was seen to be adherent to the serous lining of the anterior abdominal wall. These adhesions were separated by the finger, and there were then found to be extensive adhesions to the omentum. Some of these were separated with the finger, and others, containing vessels of some size, were tied with silk in two places and divided by scissors. The cyst was tapped with trocar, and evacuated. There was a collection of small cysts in the left wall of the main one, but these did not need emptying. The mass was then withdrawn from the abdomen, and the pedicle tied with a Staffordshire knot. There was some oozing from parietal peritoneum, so the cavity was flushed with hot water, which stopped it. A glass drainage tube was passed down into the pouch of Douglas, and the abdominal wound closed with silk sutures.

The cyst, which was found to grow from left ovary, contained nineteen pints of fluid of a thick treacly consistence, with some firmer flakes. Solid matter of cyst weighed 28 ounces. The patient vomited a few times after operation, but did not complain of any pain. The drainage tube was withdrawn on the second day. The wound healed by first intention with no signs of suppuration. Temperature never rose above 100° F. The stitches were removed on the twelfth day, and patient left the hospital at the end of a month in good health. The most remarkable feature about this case was the entire absence of pain after the operation.

For many of these notes and much valuable assistance in the treatment of the cases, I am indebted to Mr. A. R. Green, Obstetric House Surgeon.

TRAUMATIC SPREADING INFECTIVE GANGRENE FOLLOWING COMPOUND FRACTURE OF FEMUR.

UNDER THE CARE OF MR. BARLING, B.S., F.R.C.S.
REPORTED BY J. A. BERLYN, M.R.C.S.

W. M., male, aged 25, was admitted to the General Hospital June 14th, 1893, at 9 a.m., having been thrown from a high dog cart.

On examination, he was found to have sustained a fracture of the right femur in two places—in the upper third and just above the condyles. Over the latter there was a *punctured* wound, which looked as though it might have been produced by a fragment of bone, but there was no positive evidence that the fracture was actually a compound one. The knee joint was full of fluid.

The limb was thoroughly cleaned with 1–20 carbolic acid lotion and dressed with sal-alembroth gauze, and splints were applied before the patient was admitted into the ward. The temperature in the evening was 98·6.

June 15th. The patient was very restless at night, and appeared to have a good deal of pain in his thigh. The splinting was undone and some increased swelling of the thigh noticed, but nothing more, and the splinting was re-applied. Morning temperature 100·4. In the evening of this day the patient was restless, sweating freely, and delirious, much as though he were in the commencement of delirium tremens. Evening temperature 104·6.

June 16th. Patient had a fairly good night with repeated doses of chloral and the bromides. Morning temperature 102·4, pulse 120. Wound dressed, looked quite healthy; the swelling of the knee increased, the circulation in the limb good, foot warm. Towards evening patient became noisy and, later, restless, but did not complain of pain. He got little sleep, although the same sedative was used as the night before. Evening temperature 104, pulse 150.

June 17th, 10 a.m. Morning temperature 100, pulse 146, very dicrotic. Patient expressed himself as being comfortable and feeling better, but his facial expression was bad. Gangrene now for the first time made its appearance. On examining the limb, a patch of dark red blood-staining was noticed in the groin, the thigh was more swollen, very tense, and tender. The circulation below the knee was good, but at the knee and in the thigh it was very sluggish, and stagnant almost in places. Emphysematous crackling was felt in the thigh, and extended up the side and flank as high as the level of the umbilicus. The wound still looked healthy and was free from suppuration, but a little gas of fœtid odour escaped from it. As the result of a consultation, a number of punctures were made over the thigh. Through these there escaped gases of fœtid odour and some blood. The urine contained a cloud of albumen. At 2 p m. temperature 97, pulse 150. During the afternoon the patient vomited 13 oz. of "coffee-ground" fluid which answered the guiacum reaction for blood. The appearance of the thigh was now characteristic of gangrene, and the emphysema had spread to the costal margin in the nipple line. During the evening the temperature again ran up to 103, and the patient got rapidly weaker but suffered no pain. At 11 p.m. he vomited more blood, and expired almost immediately after.

Post mortem.—An examination of the viscera only was made. All were found healthy.

PERISCOPE.

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OBSTETRICAL SUBJECTS.

BY FRED EDGE, WOLVERHAMPTON.

Symphysiotomy.—The most important and most engrossing subject in this province of medical science during the last six months has been that of the operation of Symphysiotomy, its claims to replace Embryotomy and narrow the application of Cæsarean section. The results so far have been very good, and now that cases are being operated upon in the United Kingdom there will be more practical means of determining its value and its place. No doubt but that the complications and dangers have been toned down and the results glorified too highly, as is the case with all new methods of treatment, but judging from the high authorities by whom this operation has been performed and their evidence on the matter, there can be little doubt but that this operative procedure has arrived to stay as the best treatment in suitable cases.

Regnier (*Centralblatt für Gynäkologie*, 1893, No. 6) reports a case where Professor Chrobak performed Symphysiotomy successfully four years and a half after Cæsarean section had been performed upon the same patient by Professor Breisky. The conjugata vera was 7·5 centimetres and the pelvis a flat rachitic one. The child was extracted by podalic version without difficulty and alive. The separated pubic bones were united by silver sutures.

Wehle (*Arbeiten aus der Königlichen Frauenklinik in Dresden*, 1893) has written a brilliant paper on "The Scientific Basis of Symphysiotomy" which is well worth full translation. It must be remembered that the position of Cæsarean section has been established very largely by Sänger and Leopold, of Dresden, with such excellent results that some authors have said that "the perforation of the living child is no longer justifiable; yet in these very institutions a substitute for Cæsarean section is being adopted. Jean Claude de la Courvée, in 1644, performed the first symphysiotomy. The next was in 1777, by Sigault; but a vesico-vaginal fistula and non-union of the pubic bones resulted. Hunter was strongly opposed to symphysiotomy; but in Holland, Camper and Saloman performed the operation ten times. In 1778 Siebold performed the first operation in Germany. Everywhere it got into bad hands and fell into disuse. In Italy alone its supporters held on through ridicule and abuse. Baudelocque condemned it, and others, parrot-like, repeated his damnation. Credé and Scanzoni said it was permissible in a dead woman with the fœtal head wedged in the pelvis. Spiegelberg merely mentions it historically. Schröder, Fritsch, A. Martin, and Runze do not even notice it. Kehrer, Zweifel, and Winckel condemn it. Winckel says: "The good results from this operation have not been obtained, but lacerations of the bladder, injuries to the sacro-iliac joints, and necrosis of pubic bones have been plentiful. Let us hope that symphysiotomy is buried for ever." Morisani, in Italy, stuck to it, but had very bad results for some years. In 1892, Pinard, of Paris, published three successful cases, thus bringing the operation home to its native city once more.

To understand the opposition to this procedure, it is necessary to notice the reasons given for condemning it. It is continually stated that the division of the pubic joint gives very little additional space in the conjugata. This statement originated through Baudelocque seeing three unsuccessful cases of Sigault's, and from an experiment upon a pelvis with a true conjugate of 4·5 centimetres. In all these cases the pelvis was so contracted that Cæsarean section was the only operation justifiable. Kilian, Scanzoni, Fehling, Kehrer, Zweifel, and many more have repeated Baudelocque's objection without re-examination. Credé experimented, and found that the symphyses cannot be separated more than four centimetres without danger to the sacro-iliac synchondroses. The reason of this was that he used the pelves of non-puerperæ, and the well-known laxity of the puerperal pelvic joints was thus not utilised. Zweifel and Fehling stated that ossification of the symphysis often makes the operation exceedingly difficult, and necessitates sawing of the bone. Now the author examined ten pelves from women over 60, and not one was ossified; in sixty female pelves the symphysis was only central eight times, and forty times it was on the left of mid-line, explaining the reason of Baudelocque's having to saw through the bone on the right side of the symphysis. The author fixed a puerperal pelvis to a post by means of screws passed through the intervertebral foramina, the symphysis was divided, and simple lateral pressure used to separate the bones. A new element was thus discovered, for it was found that the pubic bones moved not only laterally, but also downwards, owing to the inclination of the sacro-iliac joints, which act as hinges on which the ossa innominata work. This explains the increase of 1·5 centimetres in the conjugata vera for 7 centimetres of separation. No one denies the increase in lateral and oblique diameters.

The next objection of its opponents that its complications and accidents are great, and so grave as to contra-indicate the operation, are idle in the face of modern antisepsis, asepsis and technique, and the success which has followed their application to suitable cases. The lowest limit for the conjugata vera is 6·7 centimetres, so that symphysiotomy cannot take the place of Cæsarean section for extreme pelvic contraction.

The conditions necessary for successful symphysiotomy are:

1. The patient must be free of infection.

2. The pelvis must not be anchylosed, or have an extreme oblique contraction.

3. The fœtal heart-sounds must be good.

It is also better when the patient is a multipara and the soft parts are well prepared.

The operation is described as follows:—

The bladder must be emptied, and the external and internal genitals disinfected. The operator stands between the extended legs of the patient, which are supported by two assistants, who hold the knees with one hand and exert counter-pressure against the pelvis with the other. An incision is made down to the symphysis. The pyramidal muscle is divided, and the prevesical tissues separated from the symphysis. The index finger is placed behind the joint, which is then divided with a curved probe-pointed bistoury from above behind to below forward. The symphysis is not always in the middle line. The sub-pubic ligament should not be divided if possible. The fœtal head is pressed into the pelvis and delivered, counter-pressure on the pelvis is made, and the patient's legs are kept extended. Hæmorrhage is arrested. The incision is sutured with silk ligatures, including the front of the symphysis. The pelvis is fixed by a strong binder with buckles.

Professor Leopold has performed the operation three times with perfect results.

Puerperal Eclampsia has been the subject of many recent investigations. Gerdes (*Centralblatt für Gynäkologie*, 1892, No. 20) gives the results of bacteriological investigations of the lungs, blood, liver, and kidneys of women who had died of eclampsia. He found bacteria resembling the bacillus of chicken cholera. Injected into mice these germs produce convulsions, coma, and death, and the same events follow their injection into rats, guineapigs, rabbits, and pigeons. He concludes that puerperal eclampsia is due to a specific micro-organism found in the blood and tissues of women suffering from this disease.

Hofmeister (*Fortschritte der Medicin*, 1892, Nos. 22 and 23). made experiments with bacilli which he obtained from Gerdes, and declares these bacilli to be the same as the proteus vulgaris, or common bacterium of putrefaction.

Haegler (*Centralblatt für Gynäkologie.* 1892, No. 51) made experiments with the urine of eclampsic patients, and in one case the streptococcus pyogenes albus was found, but the patient had chronic nephritis. In a fatal case the urine and tissues contained the diplococcus pneumoniæ. He does not support Gerdes' views.

Fehling and Döderlein (*Centralblatt für Gynäkologie*, 1892, No. 51, and 1893, No. 1) are also against the views of Gerdes, and agree with Dührssen that rapid delivery is the best mode of treatment.

Dührssen (*Archiv für Gynäkologie*, 1893) has given a full and exhaustive account of about two hundred cases of eclampsia with their treatment and results. For the latest information this paper should be read in full in the original. His chief points are the following:—Puerperal eclampsia is due most frequently to blood intoxication. Kreatin and kreatinin are freely present in the blood from non-elimination due to the kidneys in pregnancy, chronic nephritis, hydronephrosis, hyperhæmia of the kidneys, and to retention of urine from pressure on the ureters. Centres in the cortex of the brain capable of producing coma and convulsions are excited by the kreatin and kreatinin (Landois). An excitable condition of the nervous centres aids these causes, and in some cases convulsive attacks may be caused by reflex excitation of the cortical centres. [Sir William Roberts, in his book on "Urinary Diseases" gives the substance of these conclusions in a less developed condition.] A fatty degeneration of the kidneys, heart, stomach, mucous membranes, and destruction of the red blood cells is found in severe cases, and chloroform inhalation when prolonged increases this tendency. Each attack of eclampsia increases the danger. Emptying the uterus produces cessation of the eclampsia in 93·75 per cent. of the cases, and therefore delivery is indicated at once. The mortality is much higher in cases which are allowed to terminate naturally. To aid delivery he uses Barnes' bags, and in certain cases deep incisions of the cervix. He strongly objects to chloroform inhalations if prolonged and other than to aid speedy delivery, and chloral hydrate and morphine are also forbidden.

Pelzer (*Archiv für Gynäkologie*, No. 42, Part 2) gives the method used in the Cologne Maternity Hospital for producing premature labour, and also in cases where the labour pains are feeble and ineffective. This consists in injecting about five ounces of glycerine between the membranes and the uterine wall by means of a syringe with a long curved nozzle. The syringe must be freed of air bubbles. Uterine contractions are set up by direct irritation of the uterine surface, by the mechanical separation of the membranes from the uterine walls, and by causing transudation of the liquor amnii, owing to the hygroscopic qualities of glycerine, the ovum is lessened and thus further separation of the membranes results. Its action is certain and quick, and the glycerine is antiseptic and lubricates the genital canal.

SURGERY.

BY WILLIAM F. HASLAM, F.R.C.S.

A Clinical Classification of Hip Disease.—Robert W. Lovett, M.D., Boston (*Boston Medical and Surgical Journal*, October 13th, 1892).—Dr. Lovett points out the difficulty of recognising the exact origin of the disease: that is, whether it is synovial or osseous, and, if the latter, whether femoral or acitabular; and he prefers to depend upon a clinical classification based on certain prominent symptoms. Four types are taken.

1. The destructive form, where the disease is rapid, severe, and but little influenced by ordinary treatment. Extensive infiltration of the soft parts takes place, and in most cases the disease passes on to a fatal issue. This form is met with in children of tuberculous inheritance and poor vitality. Death is often due to exhaustion; there is a tendency to develop tubercular meningitis; and if life is prolonged, amyloid degeneration. It is hinted that in some of these cases the disease is of the nature of an acute infectious osteo-myelitis.

2. The painful form, where pain is a prominent symptom and exacerbations are common. This he regards as the commonest type of hip disease, its characteristics being joint irritability, pain, and rapid deformity.

3. The quiet or painless form, where pain is an unimportant factor or is entirely absent. Muscular spasm is an important and prominent feature in this form of the disease; it is persistent and often allows no motion, but holds the joint rigidly fixed. Passive manipulation is not painful, but fails to move the joint. Malposition comes on slowly, and yields but slowly to treatment. This type runs a slow course; there is little tendency to abscess formation, and a stiff joint is likely to result. The pathological lesion in this form is said to be a fibroid form of bone tuberculosis—"caries sicca."

4. The transient or ephemeral form, where the symptoms are mild and the course of the disease is run in a few months. The cases included under this head are those which begin in a typical way, but subside in the course of a few weeks or months. They simulate very closely cases of acute synovitis, but their early symptoms in no way differ from those generally seen in hip joint disease—viz., muscular spasm, pain, atrophy, night cries, etc.—and it is only by the after history of the case that its true character is evident.

Fractures of the Nose and their Treatment.—Walker Downie, M.B. (*Glasgow Medical Journal*, March, 1893).—After discussing the various causes of these accidents and the deformity resulting therefrom, Mr. Downie draws attention to the treatment he has found most efficacious. The hæmorrhage, which is almost always due to laceration of the lining membrane in the anterior half of the nose, is arrested by carefully plugging with some absorbent cotton wool either the middle meatus alone or with the inferior meatus. Plugging of the posterior nares is seldom if ever required. After the bleeding has ceased, the displacement is reduced, and if there is comminution, some support will be necessary to prevent its return. Mr. Downie points out that the pads of lint, retained by adhesive plaster, usually recommended are unsatisfactory, as the lateral support given by these is almost *nil*, and the pressure from the plaster on the bridge of the nose tends to cause depression. He recommends intra-nasal splints of lead as being most suitable. These consist of small portions of lead, in outline somewhat similar to an almond, and furnished with a wing on each side at the broadest part. These wings are bent over one side, so that when in position the flat portion of the splint lies in contact with the septal cartilage, and the curved wings lie against the inferior turbinated bone. The pressure over the septum can be increased by separating the wings out from the body of the splint. When properly applied, they are firmly retained within the nares, and they so fix the septum in the middle line as to thoroughly support the fractured bones at a higher level. The lead splints, from their weight and method of adjustment, may be fixed in any desired position, and from the method of fixation the patency of the nares is ensured. These having been carefully placed in position, the external splint or mask is then fitted. It is made of one piece of sheet lead, and consists of a nose-piece with the alar portions prolonged on each side to rest on the cheeks and give the splint steadiness, and a forehead part by which the apparatus is readily retained in the middle line and prevented from slipping downwards. The whole is covered by a layer of silk or linen fabric, fixed to its surface with gum or other paste. Before the splint is applied, it should be carefully moulded to the desired form, and when adjusted, it is fixed by strips of adhesive plaster.

Tenotomy by the old method.—Frederick Treves, F.R.C.S. (*The American Journal of Medical Sciences*, January, 1893).—Mr. Treves points out that the original method of dividing contracted tendons, as for instance, that of the sterno-mastoid, was by raising a flap of skin and cutting the contracted band "from without inward." This was done in 1670 by Roonhuysen, of Amsterdam, and with certain modifications the practice continued until the commencement of the present century, when it was abandoned for subcutaneous division, which offered then the prospect of far better results. "The reason of all this was that an open wound was a terror to the conscientious surgeon. Healing by first intention was rare; suppuration was the rule. The dressings applied were to the bacteria of the time what a tropical climate is to vegetation. The fussy attention which gave the wound no prospect of being left alone, and which encouraged the pouring into it of oil and wine, took away the few remaining prospects of success. Surgeons have never been famous for the publication of their failures; but one can imagine the suppuration that took place in the tendon sheaths, the abscesses that ran riot in the connective tissue, the joints that were disorganised, and the limbs that were lost in those picturesque times, when the surgeon wore knee-breeches and a furred cloak, and when aseptic surgery was yet without form and void." Such was tenotomy in those times by the open method, a practice very properly displaced by subcutaneous division, but as the necessity which led to the invention of the subcutaneous operation no longer exists Mr. Treves is of opinion that with modern precautions the old method should be practised in most cases. In dividing the tendo Achillis he still prefers the subcutaneous incision, not because it is safer, "but because the tendon can be quite as well severed through a small incision as through a large." If, however, the position of the tendon or band be such that its subcutaneous division is attended with the least uncertainty, he freely exposes it by turning back a suitable flap of skin.

Excision and Arthrectomy of the Knee.—Arthur E. Barker, F.R.C.S. (*Clinical Journal*, Feb. 8, 1893).—The author gives a clear statement of his views as to the operative treatment of tubercular disease of this joint, and describes the details of his method of removing the disease. Operative interference is advised in all cases that do not improve quickly under the routine treatment of rest, etc. A formal excision is not advised, but arthrectomy, even in cases where there is extensive disease of the bones, is recommended as giving better results, and obviating the shortening seen after excision.

Before operating on a knee that has become flexed an attempt should be made by splints and extension to restore the limb as far as possible to a straight line, for unless this rule is followed it will occasionally be found that after removing the diseased synovial membrane it is impossible to bring the limb straight without the division of some tendon, or even removing more bone. In all cases a week or two of rest in bed is recommended as a good preparation for an excision. Mr. Barker points out the importance of having firm union in a slightly flexed position so that the patient may tread on the front of the foot instead of the heel, and that in order to prevent disappointment in these cases we must remember two things—" 1st. That in adults, after removal of the encrusting cartilage of the femur and tibia, either in formal excision, or more partially in the course of an arthrectomy, *bony* ankylosis is almost the rule. 2nd. That in children the ends of the femur and tibia having very little osseous tissue, bony union is not to be expected. It is, therefore, necessary to treat the two classes of cases quite differently. In an adult, where, at the end of an operation, bone touches bone, there will be very firm union in a couple of months, and most likely bony ankylosis. In such a case supports of all kinds, at the end of a couple of months or so, can usually be dispensed with without any risk of subsequent flexion." In young children supports must be kept on for years, the best form being a plaster of Paris case from the nates to the ankle. No pegging or suturing the bones is considered necessary. The fundamental principle of the procedure is the complete and rapid mechanical removal of all tubercular material from the joint, by careful dissection, combined with voluminous flushing with sterilised hot water, conducted upon the most perfect aseptic principles possible, and followed by absolute physiological rest during the process of healing. Working on these lines the author has treated by arthrectomy many joints that a few years ago would have been considered only suitable for excision, for he considers that for the removal of the disease quite as much can be done with the gouge as with the saw, and that without loss of length to the bone. An iodoform emulsion is used over the field of operation; salicylic wool being the dressing employed.

The Treatment of Severe Club-foot.—W. J. Walsham, F.R.C.S. (*British Medical Journal*, February 18th, 1893).—This paper, read in the section of Diseases of Children, at the annual meeting of the Association at Nottingham, deals very fully with the subject; and, after the various methods in vogue have been discussed, the author draws the following conclusions:—

1. "That in the treatment of severe forms of club-foot in the infant, our aim should be to act on the bones rather than merely to stretch or divide the soft structures on the inner side of the foot.

2. "That to accomplish this object, the varus defect must not be too quickly overcome.

3. "That when the varus is cured, the foot should, if possible, be carried at once, after the division of the tendo Achillis, beyond a right angle with the leg, there being no danger of non-union of the tendo Achillis.

4. "That when the foot, after the division of the tendon, will not come up to or beyond a right angle, it is the result not, as a rule, of contraction of the posterior ligaments or of the astragalus being partially tilted out of its socket, but of a downward deflection of the astragaloid neck.

5. "That attempts are best directed to overcome this deflection by acting on the bone rather than by division of the posterior ligaments or soft structures in the sole of the foot.

6. "That in exceptional cases, even in the infant, we can prognosticate from the first that neither the varus nor the

equinus will be thoroughly overcome without a bone operation.

7. "That for such—but only after gentler means have been perseveringly tried—and for confirmed cases in older children, astragalectomy—with, if necessary, the removal of a further portion or portions of the tarsal bones—is, on the whole, the best operation."

BY GEORGE HEATON, M.A., M.B., F.R.C.S.

Washing Out the Stomach after Operations for Strangulated Hernia.—H. Lund (*Lancet*, vol. i., 1893, No. 5).—Three cases of strangulated hernia are related. 1. A man, aged 22, with a strangulated right inguinal hernia of three days' duration, the vomit being extremely fæcal. The intestine was reduced, the sac removed, and the pillars of the external rings sutured together. The stomach was then washed out with warm water until the washings returned quite clear. The patient, after the operation, had no sickness or nausea, and made an uninterrupted recovery. 2. Patient aged 33, with a left strangulated inguinal hernia. After herniotomy, the stomach was washed out repeatedly. There was no sickness or nausea after the operation. 3. Right femoral hernia in a patient of 46, which had been strangulated for seven days. The stomach, after the herniotomy, was washed out with nine pints of warm water, and there was no after sickness or nausea.

The author wishes to draw attention to the good effect of washing out the stomach freely after there has been fæcal vomiting. The treatment, though not new, is not sufficiently used in his opinion. He has seen one case where he felt confident that washing out the stomach might have saved the patient.

The Treatment of Malignant Tumours by the Inoculation of Erysipelas.—W. B. Coley, M.D. (*Amer. Jour. Med. Sc.*, vol. cv., No. 5).—The author was induced to try the efficacy of inoculation with cultures of the strepto-coccus of erysipelas on cases of malignant disease by a case of Bull's, in which an accidental attack of erysipelas in a patient, who was suffering from a round-celled sarcoma of the neck, had been followed by complete disappearance of the tumour without any recurrence seven years later.

He gives details of ten cases in which such inoculations were given. Three of them were cases of carcinoma beyond the reach of operative interference, and in all three cases there was a temporary improvement. In none of these cases was an attack of true erysipelas produced, but each injection was followed by a local inflammatory reaction, followed by diminution of the tumour.

The remaining cases were sarcomata. Two of them—periosteal sarcomata of bone—were benefited, but not cured, by the injections; but in neither case was an attack of true erysipelas produced. Of the remaining cases the effect produced, when true erysipelas followed the injections, was most marked, and, in two cases, resulted in the complete cure of the patient with total disappearance of the tumour.

The details of one of these cases are as follow:—The patient, 35 years of age, had been operated upon by Professor Durante in Rome, and a second time by Dr. Bull, when it was found that the growth was too extensive to remove. He had a sarcoma of the tonsil, and extensive secondary growths in his cervical glands. Inoculations were made by injecting small quantities of bouillon cultures of the streptococcus into the tumour. Each inoculation was followed by constitutional reaction and slight diminution in the tumour. Some two months later, when the tumours had regained their former size, a fresh culture was obtained, and 5 decigrammes were injected. An attack of true erysipelas followed within an hour, the temperature rose to 105°, and in twelve hours a patch of typical rash appeared on the neck and extended over the face and head. The disease ran a usual course. The tumour began to break down on the second day and discharged caseous material. He gained rapidly in strength and weight. In two weeks the tumour had disappeared, and, two years after, there had been no recurrence.

He has collected 38 cases of malignant disease in which erysipelas has supervened either accidentally or intentionally. Of 17 cases of carcinoma 3 were permanently cured and 1 was well five years afterwards, 10 shewed decided improvement, 1 case died. In 17 cases of sarcoma 7, or 41 per cent., were permanently cured by the attack, 10 of the remaining cases were much improved, and 1 died—probably as the result of the erysipelas.

Coley lays special stress on the parasitic origin of malignant disease. The toxic products of the erysipelas streptococci bring about such changes in the blood serum as to destroy the parasite of cancer. The parasite being destroyed, the irritation and consequent hyperæmia of the parts is lessened, and the tumour cells are starved. The toxic products of the streptococcus produce a local reaction only, and this is followed by considerable diminution in the size of the malignant growth; but where a genuine attack of erysipelas follows an injection of the pure culture of the virus, the results are much more striking and permanent. He arrives at the following conclusions:—1. The curative effect of erysipelas on malignant tumours is an established fact. 2. The action upon sarcoma is more powerful than upon carcinoma, in the ratio three to one. 3. The treatment of inoperable malignant tumours by repeated inoculations of erysipelas is both practicable and not attended with great risk. 4. The curative action is systemic, and probably due chiefly to the toxic products of the streptococcus, which products may be isolated and used without producing erysipelas. 5. This method should not be employed indiscriminately until further experiments have proved its limitations.

The value of Sutures in the Treatment of Cut Throat.—H. Morris (*Lancet*, 1892, Vol. ii., No. 26).—Immediate suture in the treatment of wound of the air passages is deprecated in works on surgery on the following grounds:—1. The sutures are at best useless as primary union can rarely be expected. 2. They are sources of danger in various ways—if bleeding occurs blood may trickle into the air passages and cause suffocation; at a later period purulent discharges may pass into the air passages, inflammation and œdema of the neighbouring parts of the mucous membrane of the larynx may ensue, or viscid mucus may collect which if it cannot be expelled through the wound will obstruct the air passages. 3. Closure of the external wound is liable to be followed by emphysema. The author departs from this usually approved practice and endeavours by the employment of buried and superficial sutures to bring about immediate union.

Four cases in which this treatment has been adopted are then detailed. The first was a self-inflicted wound dividing the thyrohyoid membrane and epiglottis. Bleeding branches of the superior thyroid artery were secured. The cut edges of the epiglottis were sutured, the edges of the divided thyrohyoid membrane, cut muscles and skin were then in turn sutured, and the wound drained at each side. The tubes were removed on the third day and the wound was soundly healed on the tenth.

The second case was a patient aged 54. The same treatment was adopted, but during the second night after the operation he tore his wound open and died.

The third case was a wound of the thyrohyoid membrane without wound of the epiglottis. The same procedure was adopted with a good recovery.

The fourth case was also a wound of the thyrohyoid membrane with division of the epiglottis and exposure of the large vessels of the neck. Immediate suture of all the divided structures was performed. On the ninth day the wound was soundly healed.

It is of great importance to fix the head and steady the neck during the healing of these wounds; the sutures may otherwise give way.

The advantages he claims for the immediate suture of these wounds are—1. The cut edges of each divided structure being held in apposition by sutures, union by first intention is secured. 2. This rapidity of union allows of rectal feeding being employed up to the time the patient can swallow naturally. 3. The distress caused by feeding three or four times a day through a tube is thereby avoided. 4. The prevention of painful or distressful attempts at swallowing, attended by the escape of fluid at the wound and the excitement of troublesome spasmodic cough. 5. The prevention of the great risk of contraction or stricture of the air passage, or food passage; so likely to follow when the wounds have been allowed to heal by granulation. 6. The prevention of a temporary or permanent fistula, opening into the air or food passage.

SURGICAL DISEASES OF THE GENITO-URINARY ORGANS.

BY GILBERT BARLING, B.S., F.R.C.S.

Improved Instruments for Crushing and Removing Urinary Calculi, with ten cases illustrating their use.—George Chismore (*Journal of Cutaneous and Genito-urinary Diseases*, October, 1892).—The writer, in 1890, first brought this subject forward. The main feature of his method is that he uses a combined crushing and evacuating lithotrite, so that if there is difficulty in picking up fragments, he converts the lithotrite into an aspirating instrument by attaching to it an evacuating bottle, which draws the fragments into the jaws of the crusher, so that "the fragments hunt the instrument instead of being groped for by it." The two chief objections to the method evidently are that the lithotrite is weakened in the process of conversion, so that it may possibly yield in the act of crushing, and the other is that the stone has to be reduced to even finer fragments than in the use of the ordinary instruments.

The ten cases quoted all recovered; but it is noticeable that the stones operated on were all of moderate size, not one of them being as much as half an ounce in weight, so that the instrument was not exposed to any very severe strain; and another fact evident is that the time occupied is somewhat longer than when the ordinary Bigelow's instruments are used. At the same time, in the case of small stones, when there is great difficulty in catching them because of their retreat behind some obstacle, such as an enlarged prostate, this method may have a distinct advantage over the ordinary plan of crushing.

Perineal Operations on the Prostate, with a brief report of a new method of removing the lateral lobes.—William Wishard, M.D. (*Journal of Cutaneous and Urinary Diseases*, December, 1892).—The writer starts with the proposition that for the purposes of rest and drainage the perineal incision is satisfactory, especially if associated with stretching of the prostatic urethra. It is however acknowledged that the length of the prostatic urethra is so considerable in many cases that the obstructing part of the gland cannot be removed through the perineal route. By determining the length of the prostatic urethra, as indicated by measurement by catheter from the meatus to the point where urine is obtained, and the size of the rectal tumour, as shewn by digital examination, a fairly correct conclusion may be arrived at as to which route should be adopted in dealing with the obstructing prostate.

In fourteen cases Dr. Wishard treated two by combined perineal and supra-pubic operation, and twelve by perineal incision only. He found that where there was a large rectal tumour, it was in each instance associated with an elongated prostatic urethra and a consequent increased perineal distance, and its attendant difficulty in making examination about the vesical orifice and inside the bladder. No great difficulty was experienced in introducing the finger into the bladder in cases where a rectal tumour was absent or small.

Two specimens were presented of lateral lobes removed through a perineal opening, and in both patients the function of micturition was restored. The author recommends this to Dittel's operation. Of the twelve cases in which the perineal operation only was done, nine patients recovered with restoration of the bladder function, one was not benefited by the operation, and two died. Of the two in which the combined method was adopted, one died from shock and the other made a perfect recovery.

The following rules are formulated:—1. In cases where the condition of the patient is such as to imperatively demand the least possible shock. 2. In cases where there is not great elongation of the prostatic urethra, as determined in the manner above suggested. In both of these the perineal route should be adopted. The mechanical value of a perineal incision, however, would appear to chiefly obtain in cases not associated with great elongation of the prostatic urethra, and in the division or removal of portions of so-called prostatic bars or collar-shaped growths, and for the removal of median or other growths about the vesical orifice or within the prostatic canal. It perhaps may also answer in certain cases for the removal of the lateral lobes, if experience does not shew this to be injurious to the canal.

Urinary Extravasation following Litholopaxy. — In the *Journal of Cutaneous and Genito-urinary Diseases*, January, 1893, a case is reported from the practice of Dr. Keyes in which urinary extravasation occurred following litholopaxy. The patient was a man of 60 years of age, with moderate prostatic obstructive trouble. Some time ago he had been subjected to litholopaxy, but no relief followed. When he came under Dr. Keyes' care, another stone was discovered in the bladder by means of the searcher. As there was an objection on the part of the friends to chloroform, ether was administered, and the man struggled violently whilst going under its influence. The stone was removed with the lithotrite, and after the operation the man felt quite comfortable, having no pain except in the groin. He failed to pass any water, however, and a catheter was introduced into the bladder, which was found to be perfectly dry. The man had no chill or temperature. The morning following the operation no water had been passed. By means of a catheter about half an ounce was withdrawn. His bladder was washed out thoroughly, but no blood clot was found. He was then given twenty grains of calomel, and soon afterwards he had a free movement of the bowels and slowly began to pass water. Ten days afterwards he had another attack of suppression of urine, without chill in temperature. About this time the abdomen began to swell, and a deep thickening could be felt on one side. An operation was then decided upon. Chloroform was administered, which he took very easily, and an exploratory incision, about six inches long, made over the posterior part of the swelling, when a cavity was discovered containing about a quart of urine. It surrounded the kidney and contained masses of putrid lymph. The effusion was sub-peritoneal, lifting up the peritoneum. The cavity was thoroughly washed out and good drainage established. The man was reported as practically out of danger. Dr. Keyes said that in his opinion the effusion came from a cyst, either of the kidney or upper part of the ureter, which ruptured during the violent struggles while taking the ether, and that the other kidney stopped acting immediately by sympathy. Under the relaxing influence of the calomel, the other kidney again began to act.

Gunshot Wound of Bladder. — Dr. A. K. Worthington (Abstract in *Western Medical Reporter*, April, 1893).—A male aged 32, while examining a revolver accidentally shot himself. The bullet struck him on the anterior and inner face of the left thigh, an inch and a half below Poupart's ligament, passing upward, backward, and inward. The external wound was trivial, and the physician who was called applied a simple antiseptic dressing, and did not return to see the case. He wisely did not probe for the bullet. Shortly afterwards the patient rose to his feet and attempted to urinate, but could not do so while erect. Upon lying down on his side, he felt something roll around inside his bladder, and was then able to urinate while in the reclining posture. This condition existed for five days, urine being always passed, while reclining, without special inconvenience. At the end of this time a slight cystitis began to make itself evident. Examination with the sound revealed the presence of the bullet, which was removed by a median perineal opening. A speedy recovery followed. The location of the wound of entrance in the groin, and the final lodging place of the bullet in the bladder, give a unique character to this case. It is assumed that the bullet passed through the obturator foramen, fortunately avoiding the vessels. It must have entered the bladder extra peritoneally and at an oblique angle, so that a valve-like flap closed the internal opening and assisted in preventing the escape of urine. The bladder wound must have been rather high up on the side of the viscus, or infiltration would have occurred.

REPORTS OF SOCIETIES.

BRITISH MEDICAL ASSOCIATION.

BIRMINGHAM AND MIDLAND COUNTIES BRANCH.

The Annual Meeting of this Branch took place on Thursday, June 22nd, at the Birmingham Medical Institute, and there was a large attendance of members. The Ex-president introduced his successor, Dr. RICKARDS, who presided.

The Report of the Council consisted, for the greater part, of a statement of the business of the Branch during the past year, but there were two or three contentious points which received prolonged discussion. The chief of these was a recommendation from the Council, in answer to an enquiry from the Lancashire and Cheshire Branch, as to the payment of the expenses of members of the Parliamentary Bills Committee. The recommendation of the Council was as follows:—

> "That this Council considers the payment of railway fares ('travelling expenses') of the members of the Parliamentary Bills Committee of the Association would be creating a very undesirable precedent, and is unnecessary."

To this Dr. Douglas moved the following amendment, mainly on the grounds that the case of the Committee was on all fours with that of the representatives in the Council, whose expenses are paid; and that, ably as Mr. Ernest Hart managed the business of the Parliamentary Bills Committee, yet it would be more in accordance with the sympathies of the profession if the

Committee were placed on a more democratic basis, which could only be secured if the attendance of the members of the Committee were more regular and the business not left so much in the hands of any individual. Dr. Douglas thought this was to be attained by members of the Committee having their expenses paid.

Amendment—

> "That this meeting of the Birmingham and Midland Branch recommends that each representative member of the Parliamentary Bills Committee, and ten other members chosen annually by the Council of the Association, when attending either a Committee Meeting or a Sub-committee Meeting of the Parliamentary Bills Committee, be paid first-class return travelling expenses (railway and boat fares) out of the funds of the Association, as is already done when members of Council attend meetings of that body."

Dr. Saundby explained that it would be practically impossible to refuse payment of the expenses of *any* of the committees who did work for the Association if the Parliamentary Bills Committee were paid, and that this would entail the expenditure of a very large sum annually; and he denied that any of the committees were in the same position, or should be placed on the same level with the Council of the Association.

After a long discussion—during which it was explained that this question is under the consideration of the Council, and that more information bearing on the question of expenditure might be obtained later—the further consideration of the resolution was adjourned.

A resolution, proposed by Mr. Jordan Lloyd, that the hour for ordinary meetings be changed from four o'clock to half-past three was ruled out of order from insufficient notice.

The remaining business consisted in the election of the Council of the Branch and the officials, and in votes of thanks to the officials for the work done in the past session.

In the evening the annual dinner was held at the Grand Hotel, Dr. Rickards presiding. About fifty members and guests attended, and the usual toasts were interspersed with some excellent music.

REVIEWS.

CLINICAL LECTURES ON ABDOMINAL HERNIA.*

THE first part of this book, as its name implies, consists of eleven clinical lectures; it is therefore, as the author acknowledges, in no sense a systematic or exhaustive treatise on the subject. Each chapter is illustrated by one or more cases, which is taken as the text of that chapter. These cases will be found most interesting and of great help to those who have to perform the operation of herniotomy, some of them being of great rarity. The author seems to have had an unusually large number of anomalous cases in his practice. He is to be congratulated on the success which he has had in treating them, although to certain of his procedures exception may be taken.

His remark that the impulse in ordinary non-strangulated herniæ containing bowel is due principally to the additional quantity of gas which is driven down into the herniated portion of gut by the act of coughing is no doubt the correct explanation, but we do not think we have seen it recorded before. The author very strongly insists on early herniotomy, asking the question why a patient with a strangulated hernia should, "as a matter of course," be allowed to vomit at all. He relates a case where an abscess in the crural canal gave rise to the symptoms of strangulated femoral hernia with acute intestinal obstruction;

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* Clinical Lectures on Abdominal Hernia, chiefly in relation to Treatment, including the Radical Cure. By William H. Bennett, F.R.C.S., Surgeon to St. George's Hospital, Member of the Board of Examiners for the Fellowship of the Royal College of Surgeons of England, and Lecturer on Clinical Surgery in St. George's Hospital Medical School.

after incising and scraping out the cavity all the symptoms disappeared. The rather unsatisfactory cause is given as that of reflex nervous irritation; suggesting also that perhaps a small hernia at the femoral ring may have been released from strangulation by the manipulation to which the parts were subjected in treating the abscess. Two other cases are given where he operated on patients with symptoms of strangulated hernia when there was only clear fluid in the sacs. An interesting case is given shewing "that although the absence of the true hernial impulse when associated with any local change in the rupture is pathognomonic of strangulation, the presence of this same impulse in the hernia, when symptoms of intestinal obstruction exist, affords in itself no grounds for concluding that the rupture is not strangulated." He points out that it is essential for the prevention of impulse in a hernia that the constriction should be at least as high up as the abdominal ring.

The chapter on valve-like folds in hernial sacs is interesting and well worth reading. Mr. Bennett comes to the conclusion that these flaps are processes formed in the natural attempt at the closure of the funicular process of the peritoneum. Five minutes is taken as the outside limit for the application of taxis, however gently it may be applied. A case is recorded of incomplete rupture of the bowel produced by prolonged taxis, the rent was closed by Lembert's sutures, the intestine returned into the peritoneal cavity, and a drainage tube with no lateral perforations left in the wound; the result was perfectly satisfactory.

Mr. Bennett argues strongly against resection of gangrenous bowel, giving as his explanation that he has never met with a case where the patient has not been in too critical a state constitutionally to bear the necessary prolongation of the operation entailed by the excision of the affected parts, even though time be greatly saved by the use of contrivances like Senn's decalcified bone plates. Almost everyone will agree with the remarks condemnatory of median abdominal section, believing that only in the rarest cases can it be called for. He himself performed the operation once in a case where there were several herniæ and it was uncertain which one was strangulated.

Radical Cure.—The chapters on Radical Cure are interesting as recording the experience of a surgeon who has performed the operation many times without a fatal result. Although it must be agreed that, *cæteris paribus*, the younger the patient the more certain is the prospect of a perfect result, other surgeons prefer not to perform the operation until the patient has at least attained the age of four years; believing that as a rule it is better not to operate until the child is older, and that those cases do best which are operated on between the ages of 10 and 20 years; for by this time the constituents of the cord are more distinct and the sac can be more easily isolated. On the contrary, everyone will agree with him that the natural tendency to spontaneous closure of the funicular process of the peritoneum is greater the younger the patient. He also states that the peritoneum is much more elastic and less firmly attached to the abdominal parietes in early life than later. All surgeons will agree with the author that it is quite unnecessary to remove the scrotal part of the sac, as by so doing the testicle is endangered, and indeed it is not easy to separate it from the sac. The use of the drainage tube in these operations on young subjects is condemned; what effusion there is will subside in a few days, and it is impossible to keep the dressings in young infants free from becoming soiled by urine; the drainage tube will only provide a channel along which it will pass into the depths of the wound.

Mr. Bennett has added a description of another form of radical cure to the already long and perplexing list. His method consists in dividing the sac, separating the neck of it well up to the internal ring, and then "one finger (or more if the ring is large) of the left hand having been introduced into the abdominal cavity through the neck of the sac, any bowel lying near the internal ring is pressed back out of the way. An ordinary pile needle (unthreaded) is then made to enter the abdominal aponeuroses about three-quarters of an inch above the upper margin of the external ring—a little to the outer side of its middle line—and transfixes the whole of the aponeuroses and peritoneum impinging on the end of the finger which occupies the neck of the sac. The needle, guided by the finger, is passed down the inside of the sac and made to pierce its outer wall at a point about half an inch from the cut edge. The needle having been threaded with a tendon or catgut suture is withdrawn, taking one end of the suture with it. The result is that one end of the suture is seen passing into the abdominal aponeuroses above the external ring, whilst the other issues from the outer wall of the proximal part of the sac near its cut edge. The needle, again unthreaded, is now made to transfix the abdominal aponeuroses and peritoneum, about half an inch internal to the point at which it entered before, traversing the sac in the same way, finally piercing the inner wall at about the same distance from the cut edge as it had done on the outer side. After having been threaded with the lower end of the suture the needle is withdrawn, carrying the suture as before with it. The open end of the sac is next sewn up by a continuous suture of catgut or silk, or occluded by means of a silk ligature placed around it as close as posssble to the spot at which the invagination suture pierces its side. The succeeding step is the invagination of the sac, which is effected by pushing with the finger the closed end through the canal into the abdomen, the invagination sutures passing through the aponeuroses above the external ring, being at the same time drawn tight. By this proceeding the sac is turned completely outside in, and its fundus firmly attached to the peritoneal surface of the anterior abdominal wall some distance above the internal ring." The margins of the canal are then brought together with three or four stout silk sutures, which pass through the whole thickness of each wall. The author claims for this method that it is simple in practice and provides the essentials for a radical cure, viz., (1) a barrier across the abdominal orifice of the canal, and (2) the complete obliteration of the hernial fossa in the peritoneum by the dragging up of the posterior wall of the sac, which brings an entirely new surface of peritoneum into relation with the internal ring. It seems to us that these advantages exist more in the author's imagination than in reality.

The use of the omental pad in radical cure has previously been brought before the profession in a paper published by the author in *The Lancet* of Sept. 19th, 1891. It is a procedure open to grave objections, which are acknowledged by the author, but only to be dismissed as unimportant. It would seem that a large pad of omentum fixed over the internal ring must often sooner or later become a source of grave trouble.

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The book is concluded with a few remarks on the radical cure of Femoral and Umbilical Herniæ. The fact is noted that when the rupture is a large one and has existed for some time the capacity of the abdomen appears to decrease as the contents of the sac increase in quantity; rendering the radical cure quite impossible. The book is well written, it will be found most interesting and useful to all practitioners, and particularly so to those more especially engaged in the practice of the art of surgery.

EDINBURGH HOSPITAL REPORTS.*

UNDER the stimulating influence of an enterprising publisher the Edinburgh medical school has at length awakened from its prolonged torpor and has produced, not unassisted but mainly by its own efforts, the very imposing volume now before us, which exceeds greatly in bulk and otherwise compares very favorably with any similar publication in this country. The contents consist of fifty-seven separate papers contributed by most of the present teachers and by a few of the past teachers in the school, and also by some of the more or less distinguished alumni who are no longer connected with Edinburgh. Among the present teachers we notice Professor Grainger Stewart who contributes a sketch of the history of the Royal Infirmary and the Development of Clinical Teaching; a case of actinomycosis of the ovaries and liver, and clinical notes on Graves' Disease. Of the second of these the more important part is an excellent pathological report by Dr. Robert Muir; the third paper contains much interesting experience respecting Graves' Disease in some of its rarer aspects; reference is made to a case which suffered from repeated attacks of paroxysmal diarrhœa of sudden and unexplained onset, so severe as to threaten death from exhaustion; also to severe paroxysmal coughing and atrophy of the hair and nails occurring in this disease. The value of the paper is increased by a summary of severe cases and a bibliography which includes most of the recent work on this subject. Professor Fraser writes on Xerostomia or mouth-dryness with dryness of the nose and eyes, symptoms which occurred as functional neuroses in a young woman, who presented no evidences of any organic disease; she was relieved by placing in her mouth thrice daily five minims of a two per cent. solution of pilocarpine; a summary in a tabular form of the other recorded cases is included in the paper. Dr. Bramwell gives an excellent case of Acromegaly, illustrated by a photograph. Dr. Wyllie has a paper on Extra-auscultation, by which he refers to the sounds audible without the stethoscope as we stand by the patient's bed; it is a very suggestive and original paper which will well repay perusal. Among past teachers we notice Dr. G. W. Balfour and Prof. Gairdner of Glasgow; the latter relates a very interesting case of tumour of the right auricle causing obstruction of the tricuspid orifice. Of the third class of contributors there may be more than we can recognise, as a good many names are unknown to us. Dr. Sims Woodhead contributes notes on Haffkine's protective inoculation against cholera, the tone of which may be gathered from the following quotation:—"By means of hygienic and sanitary precautions we must diminish the supply of cholera poison, and then in the case of those persons who are more exposed to the attack (nurses, attendants, etc., suddenly called upon to look after cholera patients) it may be found useful to confer an insusceptibility to the virus by means of inoculation. The utility of this, however, has still to be proved as far as the human subject is concerned." Professor Saundby publishes a clinical lecture on Gastric Crises in Locomotor Ataxy, merely noteworthy as a vivid description of a most intractable but fortunately rare complication The Editors each contribute a paper, Dr. Gibson on Tricuspid Stenosis; Mr. Cathcart on Ulceration of the Intestine in Strangulated Hernia; Dr. Thomson on a case of Progressive Muscular Atrophy in a child with a spinal lesion; and Dr. Hart on Perineal Suture in relation to retention of urine after labour. The various special departments are well represented; the Skin by Dr. Allan Jamieson, the Eye by Mr. Berry, the Throat by Dr. McBride, and Diseases of Women by Dr. Croome.

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* Edinburgh Hospital Reports. Published under the supervision of the Editorial Committee of the Royal Infirmary, Royal Hospital for Sick Children, and Royal Maternity and Simpson Memorial Hospital. Edited by G. A. Gibson, M.D., D.Sc., C. W. Cathcart, M.A., M.B., John Thomson, M.D., and D. Berry Hart. M.D. Volume first. Edinburgh and London: Young J. Pentland. 1893.

We have, however, quoted enough to shew that this volume contains abundant and striking evidence of the activity of the Edinburgh medical school, and we may add that it is in every respect a credit to the editors and publisher. We hail it as the forerunner of an important series and give it a hearty welcome as a most valuable addition to the work of the year.

REPORT ON THE HEALTH OF THE CITY OF BIRMINGHAM FOR THE YEAR 1892.*

Dr. Hill's annual reports are always valuable and interesting documents, and well deserve a few minutes' attention. The past year seems to have been a fairly satisfactory one; the health of the city was on the whole good, the mortality having been below the average of the large towns, and outbreaks of zymotic disease having been limited in extent and benign in their character. The most noteworthy part of the report is that which deals with the infant mortality. Birmingham is by no means in a bad position in this respect as compared with other towns of equal size and population, but she is slightly above the average of the 33 large towns and above that of the Metropolis; but the figures for the latter are collected over such a large suburban area that they are not fairly comparable with those of other cities. Still there can be no doubt that the infant mortality in England is shocking, and a disgrace to our civilisation. The average for the great towns is 164 per 1000 births, whereas in Norway it is only 106. The chief causes of death are to be found in the diseases of the digestive organs, and the etiology of these may be found in deprivation of mothers' milk, due to the employment of women away from their homes or maternal neglect, and in the use of improper and injurious substitutes. Dr. Hill considers that we must look to social rather than to sanitary agencies to effect an improvement in this state of things; but he suggests that much may be done in this way by better teaching, by visiting the poor in their homes, by the establishment of crèches, and by the regulation of infant life insurance. He does not advocate any interference with employment of married women in factories, though this appears to us to be a social evil of the most undoubted kind. The employment of married women leads, in the first place, to early and imprudent marriages, by permitting a boy and girl, by their joint earnings, to establish a home. This goes on very well until pregnancy diminishes the woman's capacity for wage-earning, and maternity threatens to annihilate it. The young couple have to face a serious problem, and the alternatives are neglect of the baby, on the one hand, or something very like want on the other. Who can wonder that in most cases the baby has to suffer? In many instances it does, but not always. Pregnancy succeeds pregnancy, and the fruits, or some of them, live to become a curse instead of a blessing to the home. Ill cared for, often ailing children do not make a poor man's home a pleasanter place to come to when his work is done, and the temptation to spend his earnings away from home is increased by the discomfort that too often awaits him there. It does not need much imagination to predict the future of such a family. One wise employer of labour on a very large scale near Birmingham, who is second to none in his care for his workpeople, has a rule that no married woman can be employed in his works. He teaches practically the important lesson that when a woman is married her proper place is home. This is a view which we commend to those trade organisations which seek to regulate by legislative enactments the conditions of labour.

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* Report on the Health of the City of Birmingham for the year 1892. By Alfred Hill, M.D., F.I.C. Printed by order of the Health Committee. Birmingham: George Jones and Son.

PUBLIC HEALTH LABORATORY WORK.*

WHEN a course of instruction in the Laboratory became necessary for candidates for Diplomas in Public Health it was inevitable that a book or books suited to the wants of students should be forthcoming. It is with much regret that we have to write that the book has not yet made its appearance; for although Dr. Kenwood and his colleague in the production of the volume under review have endeavoured to supply what is a real want, they have, at least as far as Dr. Kenwood is concerned, ignominiously failed.

The book deals with the Chemical Analysis of Water, Air, Food, Soil, and Coal Gas, and also gives a short account of the methods employed in bacteriological research, with special reference to the examination of Air, Water, and Food. This latter portion from the pen of Dr. Boyce appears to be accurate and useful, and is the one part of the book that can be commended.

The other and larger part by Dr. Kenwood is not only full of errors but is written in a style both crude and slipshod. The language used is a mixture of that in vogue in the chemical laboratory and the druggist's shop, for on the same page will be found instructions to add to a solution ***ammonium carbonate*** and ***liquor potassæ***. One more instance of looseness of expression will suffice. On page 105 he says, "The presence of magnesia may be best ascertained by precipitating all the ***calcium*** present in the water by means of ***powdered oxalate of ammonia*** and filtering until the filtrate is perfectly clear and free from ***calcium***." Dr. Kenwood's meaning would no doubt be clear to a trained analyst familar with the process, but what state of mind is likely to be produced in a young medical man with only an average amount of chemical knowledge?

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* Public Health Laboratory Work. By Henry R. Kenwood, M.B., D.P.H, F.C.S, Instructor in the Hygienic Laboratory, University College; and Robert Boyce, M.B., Assistant Professor of Pathology, University College. London: H. K. Lewis.

On turning to the Chapters on Food Examination we find some extraordinary statements. On page 283 we are told that chalk is frequently added to milk. It would be interesting to know whence Dr. Kenwood derived this startling piece of information. Many thousands of samples have been annually analysed for some years, and we are not aware that as a result of such examination by public analysts chalk has been ***frequently*** found, in fact we doubt if a dozen cases have been brought to light in the last ten years. On page 284 Dr. Kenwood says that the standard of fat in milk must be a very low one "in order to include those very poor samples naturally which contain even less than two per cent." Luckily for the British householder Dr. Kenwood has not yet been acknowledged an authority on this matter, and he appears to be even behind the Somerset House Chemists in acquiring information. It may be news to him to know that the Society of Public Analysts has adopted three per cent. as a minimum, and not only in England but in other countries is this figure generally accepted. It is unnecessary to notice any more opinions of Dr. Kenwood, we can only say with much regret that we feel that this book is absolutely unfitted for the class for which it was intended, and unfortunately for the author's reputation it conveys to the reader the idea that he is only partially familiar with the matters with which he professes to deal.

CHEYNE-STOKES RESPIRATION.*

This is without doubt the most exhaustive monograph on this special clinical symptom in our tongue, and is probably the most complete in any language.

It is divided into three parts. The first and longest contains a concise account of the various views held by 180 writers up to the present day. This must ever remain a monument of the author's patient industry and power of condensation.

Part III., the critical, seems to us the weakest portion of the volume. It is little more than an amplification of some criticisms which appear from time to time, and very properly appear, in the first part. It shews its weakness the more, since, like every other impartial student of the subject, Dr. Gibson is unable to give any definite or constantly acting cause for the phenomenon, and hence can only hold the scales for the rival theories. Even this he feels unable to do with any dogmatism, for, after quoting Waller's definition, he concludes thus:—"Since this expression of opinion, so far as it goes, closely agrees with the views urged in the concluding pages of this work, it is as unnecessary as it is impossible to criticise it," and so leaves us still wondering and doubting both as to our own knowledge and our author's opinions; for in this quotation from Waller the following sentences occur:—"No definite or conclusive cause can be assigned to this peculiarity of rhythm. It is not characteristic of fatty degeneration of the heart, but makes its appearance in a variety of diseases, or in the absence of any disease at all." At the same time Dr. Gibson recognises that "the essential cause is, without doubt, a periodic variation in the functional activity of the automatic centre for respiration. . . . Whether the periodic variation depends simply upon the loss of the influence of higher regulating centres,† or whether it is also at the same time the result of diminished vitality, in accordance with some great natural law, it is not at present in our power to decide."

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* Cheyne-Stokes Respiration. By G. A. Gibson, M.D., D.Sc.

† As may occur, *e.g.*, in normal sleep.

Dr. Gibson also lays stress on the fact, which he tells us was first pointed out by Rosenbach, that this periodic breathing is only one of a complex group of associated symptoms connected with pulse, eye, and mind; and he "hazards the suggestion" that the centres involved in each group of symptoms may be affected singly and collectively, for it is comparatively rarely that the whole group appear together in any one instance.

In the clinical portion of the work (Part II.), which is also the shortest, a complete account is given of the whole complex of symptoms, and a full report of six typical cases, with cardiograms and stethograms.

We congratulate Dr. Gibson on the result of his labours, and feel sure that he has won the gratitude of all students of respiratory pathology and physiology.

THE CARDINAL SYMPTOMS OF URINARY DISEASE.*

In a book of 350 pages Mr. Fenwick has presented a compilation of his extensive experience in diseases of the urinary apparatus. He is an able exponent of those modern views of the diagnosis and treatment of these diseases which owe their development so largely to the perfection of the cystoscope. In these lectures—for such they appear originally to have been—we have most forcibly presented excellent clinical pictures of the symptoms met with in urinary disease, with cases, where possible, to illustrate the more important points.

The work is divided into several sections, and, as illustrating the plan of it, we may describe how the great symptom of hæmaturia is dealt with. In Section I. the *source* of hæmaturia is mainly under discussion—whether from bladder, prostate, kidney, etc.; and this is based upon a consideration of the *colour* of the urine, upon the *time* at which the blood appears in the stream, and upon the *shape* of the clot.

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* The Cardinal Symptoms of Urinary Disease: Their Diagnostic Significance and Treatment. By E. Hurry Fenwick, F.R.C.S., Surgeon to the London Hospital. With 36 illustrations. London: J. and A. Churchill. 1893.

Sections II. and III. deal with the *causes* of hæmaturia, under the headings of diet and drugs and disease. The hæmaturia of disease is sub-divided into that *without* co-existing symptoms and that *with* other symptoms, and each of them is again subdivided into a renal and a vesical group.

Section IV. is devoted to the treatment of hæmaturia.

On a similar plan "Undue Frequency of Micturition" is treated of; so also "Abnormal Urination;" and a section is given up to "Pain and the Reflex Neuroses of Urinary Disease." This plan lends itself to a minute discussion of the particular symptom for the moment under consideration, but has the drawback that it often fails to give practitioners a grasp of the complex of symptoms which goes to make up a case as it is seen at the bedside. As a result, there is apt to be undue stress laid upon some symptom which forcibly attracts attention, as, for instance, pain; whilst the other points in the case—the controllers of the diagnosis—do not receive due attention.

Apart from this inseparable drawback, Mr. Fenwick's book is undoubtedly an excellent one, and will add to the author's reputation. We specially commend to the reader's attention the chapters on "Irrepressible Urination" and "Incontinence, True and False."

A MEDICAL HANDBOOK.*

THIS book is one that has suffered considerably from too great compression, many articles having evidently been written with the object of occupying the smallest possible amount of space. The result is that the performance is an unequal one. Where the author has allowed himself sufficient room for the fair treatment of his subject his work is extremely clear, and possesses some very excellent points, an instance of which will be found in his account of Valvular Disease of the Heart, which is, we think, as good as that in any of the smaller text books we know, the treatment being especially well described. The extreme scantiness, however, of the notice of some important subjects makes it impossible to recommend the book for the use of students who are reading for examinations Thus, whilst the space allotted to the clinical aspect of chronic peritonitis amounts to a few lines only, that of tubercular peritonitis is dismissed in less than two, and no attempt is made to give this disease an individuality of its own. Cutaneous diseases, again, are classified only, without note or description of any sort; and many other instances might be given of the inadequate treatment of important points.

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* A Medical Handbook. By R. S. Aitchison, M.B., C.M., F.R.C.P.E. London: Charles Griffin and Co. 1893.

Our feeling with regard to this book is that it only needs a little alteration and expansion to convert it into a really valuable short text-book on medicine; but that, in its present form, it falls short of the requirements of such a work.

DISEASES OF THE SKIN.*

THE second edition of this book has grown to almost enormous proportions, and now its pages number over 900. This increase in size is due to the great activity of dermatology all over the world, with a corresponding increase of new names for old or imperfectly observed diseases. It is not possible to say that there is too much of the book, for it is exceedingly well written, and the descriptions are admirable; but it is difficult to believe that it could not have been materially shortened.

Its value is greatly increased by an admirable index, which makes it useful to practitioners in search of help.

The appendix contains a brief but adequate report of the principal mineral waters and spas useful in the treatment of skin diseases.

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* Diseases of the Skin. By Dr. Radcliffe Crocker.

It is well printed and illustrated.

Ample reference is made to the work of others, but its chief value lies in the individuality, which Dr. Crocker has never lost, and very unnecessarily offers a quasi apology for. A general survey of the treatment of skin diseases is furnished in a special chapter. Unna's work receives full recognition, though his appreciation of the local value of ichthyol is not endorsed by Dr. Crocker.

The whole work cannot fail to be of use to those engaged in special work, while its service to the student is increased by the directions which have very wisely been inserted at the beginning of the book.

INTERNATIONAL MEDICAL CONGRESS AT ROME.

SEPTEMBER 24TH TO OCTOBER 1ST, 1893.

MESSRS. THOS. COOK AND SON announce that the English, French, and Italian Railway Companies interested in the route between England and Rome have in many cases made very considerable reductions. The concessions made by the English Railway Companies apply only to actual Delegates attending the Congress, but the concessions of the French and Italian Railways apply equally to the wives and children of members, providing that the necessary documents are produced.

The tickets for travelling at reduced rates on the English Railways will be issued on production of the ticket of membership, those for the French Railways on production of the letter of indication, and those for the Italian Railways on production of the card of legitimisation. These documents must be obtained from the Secretary of the London Committee. Members travelling direct may leave from any Station of the London Chatham and Dover Railway for the Calais route, or London Brighton and South Coast Railway for the Dieppe route, and may travel to Rome and back for about the single fare, *via* Paris. Members who wish to make circular tours in Italy should book only to one of the frontier Stations between Italy and France, and there obtain a cheap circular ticket. These circular tickets are issued either to return to the same frontier Station as the starting point, or to commence at Modane and finish at Vintimille or *vice versa*, or to commence and end at any of the Italian frontier Stations of Switzerland or Austria.

The following are the ordinary Single Journey Fares from London to Rome:—

ROUTE.	CLASS.						No. of days valid.
	First.			Second.			
	£	s.	d.	£	s.	d.	
Dieppe, Paris. Turin, Genoa. Pisa	8	13	7	6	1	5	17
Dover. Calais, Paris, as above	9	19	6	6	19	6	17
Dieppe, Paris, Marseilles, Genoa, Pisa	10	1	6	7	0	0	30
Dover, Calais, Paris, as above	11	6	3	7	18	0	—
Dieppe, Paris, Turin, Bologna, Florence	9	5	9	6	10	0	17
Dover, Calais, Paris, Turin, Bologna	10	11	3	7	7	9	17
Dover, Calais, Laon, St. Gothard Railway, Pino, Genoa	10	13	0	7	15	0	17
Dover, Calais, Laon, St. Gothard Railway, Chiasso, Genoa	10	14	0	7	16	0	17
Dover, Calais, Laon, Lucerne, Milan, Florence	10	7	6	7	15	0	30
Dieppe, Paris, Bale, as above	9	8	9	6	13	3	7
Dover. Calais, Paris, as above	10	15	0	7	13	0	17
Harwich, Antwerp, Brussels, Metz, Bale, as above	9	14	9	6	17	11	17
Queenborough, Flushing. Brussels, Metz, etc.	9	9	6	6	13	0	30
Queenborough, Flushing, Cologne, Munich	10	17	4	7	17	1	30
Dover, Calais, Metz, Bale, etc.	10	15	3	7	17	6	30
Dover, Ostend, Metz, Bale. etc.	10	3	0	7	8	0	30
Dieppe, Paris, Turin, Venice, Florence	10	10	3	7	7	0	17
Dover. Calais, Paris, as above	11	13	6	8	5	9	17
Dover. Calais, Laon, St. Gothard Railway, Venice, Florence	11	17	6	8	12	3	17
Dieppe, Paris, Bale, as above	10	11	3	7	9	0	17
Dover, Calais, Paris, as above	12	3	6	8	18	3	17
Dieppe, Paris, Turin, Milan, Florence	9	9	0	6	12	6	17
Dover, Calais, Paris, as above	10	11	9	7	10	3	17
Harwich, Rotterdam, Cologne, Munich, Bologna, Florence	10	7	10	7	8	0	40
Harwich, Antwerp. as above	10	11	4	7	10	6	40
Harwich, Rotterdam, Cologne, Stuttgart, Munich, etc.	10	15	10	7	13	9	40
Harwich, Antwerp, Cologne, as above	10	19	4	7	16	3	40

In order to relieve Delegates and their friends of all the trouble and inconvenience incidental to foreign travel Messrs. THOS. COOK AND SON have made arrangements to convey a

Personally Conducted Party to Rome and back at a specially favourable and inclusive rate, providing for travelling tickets, hotel accommodation, consisting of bedroom, lights and service, and meat breakfast, transfer of passengers and baggage between Stations and Hotels, free conveyance of 56 lbs. of baggage, fees to hotel servants, waiters, porters, railway guards, etc., and the services of a competent Conductor, who will secure the railway and hotel accommodation in advance. The inclusive fare will be—

First Class, £16. 10s. 0d.* Second Class, £13. 10s. 0d.*

If with full board (three meals a day), consisting of meat breakfast, dinner, and plain tea; or plain breakfast, luncheon, and dinner, £3. 7s. 6d. extra.

* These rates apply to Delegates only. Fares for friends will be quoted upon application.

ITINERARY.

Wednesday, September 20th.—The party will leave London, Victoria Station (L. C. & D. Railway) at 11 o'clock a.m., *via* Dover and Calais, for Paris. Arrive Paris 7.0 p.m. Hotel Accommodation provided at the Hotel London and New York, or Hotel St. Petersburg.

Thursday, September 21st.—The day to be spent in Paris, leaving at 8.55 p.m. from the Lyons Station by Express Trains for Italy, *via* the Mt. Cenis tunnel.

Friday, September 22nd.—Arrive Turin 2.0 p.m. The afternoon will be spent in Turin, affording an opportunity for visiting the celebrated Egyptian Museum and other places of interest. Hotel Trombetta.

Saturday, September 23rd—Leave Turin 8.25 a.m. by Express Train *via* Genoa and Pisa, arriving Rome 11.15 p.m. Eight days will be spent in Rome. A special programme will be published, shewing the arrangements for visiting Naples, Vesuvius, Pompeii, etc. Hotel Allemagne, Rome.

Monday, October 2nd.—Leave Rome 8.0 a.m., arrive Pisa 2 22 p.m. Carriages to the Cathedral, Leaning Tower, and Baptistry, returning to the Station, leaving 3.20 p.m., arriving Genoa 10.30 p m.

Tuesday, October 3rd.—Leave Genoa 3 0 p.m., arrive Turin 7.5 p.m. Leave 11.15 p.m. by Express for Paris.

Wednesday, October 4th.—Arrive in Paris 5.34 p.m. Sleep in Paris.

Thursday, October 5th.—Leave Paris (Nord Station) 11.30 a m. *via* Calais and Dover, arriving in London 7.20 p.m. Visitors may prolong their stay in Rome or Paris.

EXTENSION.—Rome to Naples and back, including the ascent of Vesuvius--First Class, £2. 13s. 9d., Second Class, £2. 3s. 9d., Railway fares only.

Members wishing to make a more extended tour may find the following itinerary, kindly worked out by Messrs. Cook, of service to them:—

Via CALAIS, LAON, BALE, LUCERNE, MILAN, VENICE, FLORENCE.

Wednesday, Sep. 13—Leave London 11.0 a.m. for Bale *via* Calais and Laon, arriving there at 6.5 a.m.

Thursday, Sep. 14.—Leave next train and arrive Lucerne 9.10 a.m.

Friday 15 Saturday 16, Sunday 17.—In Lucerne and neighbourhood for Righi, Lake Lucerne, etc. Leave by night train (10.29 p.m.) arrive Milan 7.42 a.m. on Monday.

Tuesday, 19.—Leave Milan at 12.55 noon, arrive Venice 6.35 p.m.

Wednesday, 20, Thursday, 21.—In Venice.

Friday, 22.—Leave Venice 10.5 a.m., arrive Florence at 6.27 p.m.

Saturday, 23.—Leave Florence 11.35 p.m., arrive Rome 7.25 a m. on Sunday.

Sunday, 24.—Till Monday, October 2nd, in Rome.

Monday, Oct. 2,—Leave for Pisa at 8 0 a m., arriving Pisa 2.22 p.m. Leave 3.20 p.m. for Genoa, arriving 10.30 p.m. Sleep at Genoa.

Tuesday, Oct. 3.—Leave Genoa 3 0 p.m., arrive Turin 7.5, leaving same evening 11.15 for Paris, arriving in Paris 5.34 p.m. on Wednesday. Sleep in Paris.

Thursday, Oct. 5.—Leave Paris 11.30 a m , arrive London 7.20 p.m.

HOTELS IN ROME RECOMMENDED.—Hôtel d'Allemagne, Continental Hôtel, Hôtel Marini.

It is recommended that rooms should be secured before-hand

PUBLISHER'S DEPARTMENT.

New Books, etc., Received.

A Practical Treatise on Materia Medica and Therapeutics, with special reference to the Clinical Application of Drugs. By JOHN V. SHOEMAKER, A.M., M.D In two volumes. Second edition. Philadelphia and London: The F. A. Davis Company. 1893.

Selected Monographs on Dermatology. Translated for and published by the New Sydenham Society 1893.

Lectures on Sanitary Law. By A. WYNTER BLYTH, M.R.C.S., L.S.A., Barrister-at-Law. London: Macmillan and Co. 1893.

Domestic Medicine and Hygiene. By WILLIAM J RUSSELL, M.B. Third edition. London: W. H. Everett and Son.

Hospital Sisters and their Duties. By E C. E. Lückes. Matron to the London Hospital. Third edition. London: The Scientific Press Limited. 1893.

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NOTICE.—*All Communications should be addressed to the Printers and Publishers, Messrs. Hall and English, 71, High Street, Birmingham.*

THE

BIRMINGHAM MEDICAL REVIEW.

AUGUST, 1893.

ORIGINAL COMMUNICATIONS.

REMARKS ON INFECTIOUS DISEASES WITH ESPECIAL REFERENCE TO THEIR TREATMENT BY VACCINES.*

BY EDWIN RICKARDS, M.B., F.R.C.P.

Gentlemen,

The choice of a subject for to-day's Inaugural Address caused me some anxiety, and the desire to say something which might stimulate useful thought, led me to ask your indulgence for making a somewhat new departure in addressing you at this our Annual Meeting on a strictly medical subject. The title of my address is, Remarks on Infectious Diseases with especial reference to their Treatment by Vaccines.

I feel I ought to preface my remarks by giving an answer to a question which naturally suggests itself to all present—What is an Infectious Disease? The framing of a definition is always difficult, and it is especially so in this case, seeing that the class of infectious diseases is already an extensive one and its borders are being daily enlarged, so that a concise yet comprehensive definition which would answer for many members of the class would not fit all. With our present knowledge I think I am justified in defining an infectious disease as a disease caused by the presence in the body of a Pathogenic Micro-organism from without, having an incubative period and capable of being communicated (by some method) from one individual to another. There are other features which characterise most members of the class, but not all: such as Fever, limited duration, protection of the system from a future attack of the same disease.

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* Presidential Address at the Annual Meeting of the Birmingham and Midland Counties Branch of the British Medical Association.

You no doubt, gentlemen, have been impressed, as I have been, with our powerlessness to deal with Diseases of Degeneration and Malignant Neoplasms, and also by the poorness of the prospect of our gaining ground in this direction. Tissue decay is not under our control nor likely to be, and although we may sometimes be able to influence the pace of its progress, the bursting of a rotten vessel may be postponed by precaution, and life may be prolonged in spite of sclerosed organs, yet the lesion remains and a cure is hopeless. In diseases of degeneration, however, individuals are solely concerned, and for them they are chiefly responsible; some, by their struggle to be front in the battle of life, court these changes, which land them in a premature grave; some drink themselves into the family vault. For premature decay parentage is sometimes culpable; short-lived parents tend to produce short-lived children, and as we inherit physiological and anatomical peculiarities, so we have to accept pathological tendencies. Deaths from degenerative disease induced by special industries are preventable and lie at the door of our legislature. With regard to malignant neoplasms, they can neither be prevented nor cured, if knifed away their speedy return is certain.

But infectious diseases, on the other hand, speaking generally, concern not only those attacked, but those around—the whole community, *tua res agitur paries si proximus ardet.* Hitherto, with regard to them, our energies have been spent almost entirely on prevention; and, with all our improvements in practical sanitation, outbreaks continue to manifest themselves, though these are looked upon as a reflection on the authorities of the district where they occur. Our curative treatment of these diseases has been essentially expectant; we have stood at the bedside only as nurses to nature, making domestic condition favourable, trying to relieve symptoms and combat complications, knowing that the tendency in most of the infectious disorders is for the disease to terminate spontaneously, and feeling assured that if we can keep our patients alive for a limited but varying period of time, their recovery will be complete. There appears now promise that we are on the eve of a great medical era, when we shall no longer be satisfied with lessening our losses from infectious diseases by preventive measures, and look on while these diseases run their uninterrupted course to recovery or death, but shall have curative methods at our command.

From time immemorial it has been thought that in the spread of infectious diseases a something was transferred from one person to another directly or indirectly, but the nature of that something and the mode of its transferrence were mysteries. It is true that there ever have been and still are a few advocates of the occasional *de novo* origin of infective viruses, whose one argument has been sporadic cases where communication between the affected and previous cases has not been apparent; but when we consider the durability of viruses and the abundant vehicles which may transport them—man, animals, clothing, merchandise, air, water—the bottom seems knocked out of that argument.

Centuries ago there was a suspicion that some infectious diseases were caused by micro-organisms, and when, in the middle of this century, it became known that fermentation was the result of the action of a living organism, the term zymotic was imported into our medical nomenclature, to designate endemic, epidemic, and contagious diseases.

Now the germ origin of infectious disorders is fairly established, bacteriologists are beginning to particularise the various micro-organisms which give rise to the different diseases, to call them all by their names, to figure them, to colour them by stains, to differentiate them by culture, to attenuate and intensify their activity, and to separate their poisonous secretions.

But apart from the demonstration of microbes in infectious

diseases by the microscope and by cultures, we are forced to the conclusion that these diseases are caused by living organisms by the fact that in every infectious disease a developmental period is essential; and the duration of that period in each case is becoming known. We know that if a person, a week after exposure to the contagium of smallpox, shews smallpox pustules, the smallpox is not the result of the exposure a week previously, because the week could not have sufficed for the incubation of the disease and the development of the pustules. This incubative period can, to my mind, only be explained by the growth or multiplication of a living organism. All lifeless poisons, as strychnine and arsenic, require no time for incubation, but shew their effect at once; their symptoms are synchronous with absorption. The fixed period of the incubative stage and the duration of illness, which varies within narrow limits in most of the infectious diseases, seem to argue in favour of their microbic origin. These features lend colour to the conception of the growth and death of a living organism, its death being the result of a poison secreted by itself, or of starvation of the parasite from its having completely consumed some constituent of the body upon which it feeds. This latter view would go to explain the phenomenon of immunity, which is difficult to explain on other grounds. The immunity afforded by an attack of an infectious disease against a future attack of the same disease is, to my mind, further evidence of its microbic origin; for we know of no inanimate poison which will afford such immunity against its own future action.

The study of bacteriology is a gigantic undertaking and quite outside individual enterprise: the necessary appliances, the character of the experiments, the nature of the observations make it a specialism. We are now anxiously waiting for knowledge from the bacteriologist, who is endeavouring to learn the life history of microbes, the conditions favourable and prejudicial to their existence, agents which will destroy them or neutralise the poisons which they produce, or some method by which the human organism may be protected against the attacks of these

parasites. The undertaking is not likely to be one of rapid accomplishment.—"To climb steep hills requires slow pace at first."

I wish now to refer, in some detail, to one or two of the infectious diseases, and first I propose to dwell at some length on smallpox and its preventive treatment by vaccination. Let us first take a cursory glance at the history of vaccination. The ravages of smallpox were met in by-gone times by inoculating the healthy with smallpox to produce an attack of the disease which was of a mild character but yet protected the system against future attacks. When and where variolation was first in operation history does not say. There is no doubt that Lady Mary Wortley Montague introduced it into this country in the early part of last century, and that it was extensively carried on here in the latter part of that century and that the practice was continued up to 1840, when Parliament prohibited it. While variolation produced very mild attacks, little disfigurement, a mortality of about only one in five hundred and as much security as an attack of the disease acquired by contagion, yet it obviously increased the number of cases of smallpox by giving it to those who would not otherwise have had it, and these, in their turn, spreading it by contagion.

In 1796 Jenner performed his first vaccination. He found on the hands of a milkmaid, in Gloucestershire, vesicles contracted accidentally by milking a cowpoxed cow. With lymph from these vesicles he inoculated a boy and produced vaccine vesicles; this boy, some six weeks afterwards, he inoculated with smallpox without result, and thereby satisfied himself that cowpox inoculation, or vaccination, had rendered this boy insusceptible of smallpox.

Let us pause for a moment to speculate on the working of Jenner's mind at this time. He saw the trivial effects of inoculated smallpox and the security which this variolation afforded against subsequent attacks of smallpox. His ears were open to the common talk in the dairy districts that those milkers who had casually inoculated their fingers with cowpox were

afterwards and thereby proof against smallpox. He saw that cowpox in man produced a more trifling ailment than inoculated smallpox, no danger to life, no spread by contagion.

It is not surprising that his synthetical mind should have suggested, why not inoculate with cowpox lymph instead of variolus lymph. In 1798 Jenner goes into print with the title of "Enquiries into the Causes and Effects of the Variola Vaccina, a disease discovered in some of the Western Counties of England, particularly Gloucestershire, and known by the name of the Cowpox." In this publication he gives an account of his first vaccination, and states how that he lost his stock of lymph and was therefore prevented from repeating his experiment until March, 1798, when he inoculated a boy with cowpox lymph straight from a pock on the teat of a cow. The inoculation succeeded, and from vesicles on this boy he inoculated others, and from them others, and for aught I know you and I have been vaccinated from the same stock of lymph.

Unfortunately, at the commencement of his researches, Jenner's mind was hampered by the idea that cowpox in the cow was developed by inoculation with matter from the heels of horses suffering from a disease called the Grease; but he lived to find his theory of the horse-grease origin of cowpox erroneous; and even while holding to the horse-grease origin of cowpox, it is clear, from the Latin appellation he gave to the latter disease (Variolæ Vaccinæ), that it was in his mind that cowpox might be smallpox of the cow.

It would be foreign to my purpose to go into all the attempts that were made to rob Jenner of his laurels, the multitudinous attacks on his system, the numberless experiments which were made, and which seemed to prove conclusively anything and everything both for and against his doctrine; and are they not written in Crookshank on Vaccination? It was said that he was not the first to inoculate man with cowpox; and perhaps he was not. There is historic evidence that a farmer, named Benjamin Jesty, as early as 1774, performed the operation on his wife and two sons as a protection against smallpox; but to Jenner is

undoubtedly due the credit of introducing vaccination to the public and getting their assent to its practice. He first used humanised cowpox lymph, and kept up the supply by arm-to-arm vaccination; and but for an arm-to-arm vaccination, vaccination must have collapsed, inasmuch as cowpox is a very rare disease—so rare that, although I have been in touch with some dairy districts for over twenty years, I have never had an opportunity of seeing a case.

I must not omit mention of the action of our Association in the matter. It appointed a committee to consider the question and to examine the evidence; Barron, the biographer of Jenner, was chairman; and its report, which appeared in 1839, set forth that cowpox in man secured him from subsequent attacks of smallpox; it affirmed the identity of the two diseases; it pointed out that while horse-grease did not produce cowpox, there was a disease of horses called horsepox which afforded the same protection as cowpox; it supported vaccination by statistics.

There were failures in vaccinal protection in Jenner's time; he met them by ascribing them to the use of lymph from spurious cowpox, the lymph of which was not protective. In the year 1845 Doctor Badcock, of Brighton, had smallpox himself three months after vaccination, and he found failures in others. He concluded that the lymph in use was getting worn out; he raised a new stock by variolating a cow, and this lymph was extensively used.

In 1853 Marson, of the London Smallpox Hospital, explained failures by the insufficient application of the lymph, and said that security might be measured by the number of cicatrices. He found that while the mortality of those with one scar was 7½ per cent., that of those with four scars was less than 1 per cent.

What, I would ask, is our position now in regard to vaccination? Maybe some of the profession are satisfied to practise on authority and are pleased to be spared the time and trouble of thinking; the bulk of us, however, desire to have a reason for

the faith that is in us. The consideration of the question in its scientific aspect involves reliance on observations made a long time ago, when criticism, though violent, was not so severe as now; one such observation showing that human smallpox may be transferred to the cow by contagion, by exposing the animal to clothing from a smallpox patient, and many others which have at one time had credit, are now not generally accepted. Before an opinion can be formed from the scientific aspect of the subject many experiments would have to be repeated, many questions would have to be thought out. For instance: Is our present vaccinia cultivated cowpox? that is to say, is the lymph now in use humanised cowpox lymph or cowpox lymph, the stock of which has been kept up by heifer inoculation? Is cowpox a disease arising spontaneously in the cow. Is cowpox in the cow the same disease as smallpox in man? Is cowpox inoculated human smallpox?

It is said by some that cowpox is a local disease and non-contagious, that smallpox is a general disease and contagious, and that, therefore, the two diseases cannot be the same; but we have learnt of late years how disease may be modified by cultivation, and history tells us of the great difference between inoculated smallpox and natural smallpox; moreover, we know of no disease in man which protects him from a different disease or even modifies an attack of a different disease; and a strong argument to my mind that cowpox is inoculated human smallpox is the recorded fact that stocks of lymph raised by variolating the cow have been extensively used for vaccination and have produced vaccinia to all appearances the same as that from cowpox lymph and bestowing the same protective influence.

The view that cowpox in the cow is inoculated smallpox explains the rarity of cowpox at the present time, inasmuch as persons do not now, as formerly, follow their occupations while suffering from smallpox; and, should this view prove to be correct, the value of Jenner's discovery would be much enhanced from a scientific standpoint.

In weighing the claims of vaccination my mind has been

largely influenced by Jenner's experiments, by statistics, especially recent ones, and by my own limited observations. Jenner vaccinated and then tried in vain to variolate. It would be well if we were permitted to repeat his experiments and so settle the question, but the law forbids. There are some startling statistics in Dr. Barry's report of the smallpox epidemic at Sheffield, 1887–88. From his report of that epidemic, it appears that of the vaccinated inhabitants of Sheffield 1½ per cent. were attacked with smallpox, of the unvaccinated about 10 per cent.; that of those attacked the mortality of the vaccinated was about 5 per cent., of the unvaccinated about 50 per cent.; that of children under five years of age attacked not one per cent. of the vaccinated died, whereas of the unvaccinated over 50 per cent. died; all the employees in the Post Office, 290 in number, who had all been re-vaccinated on entering the service, escaped the disease. The report of the Royal Commission on Vaccination, 1890, shows that of the children under ten years of age admitted into the Hampstead Hospital with smallpox, 1876-7-8, the mortality of the vaccinated was about 3 per cent., of the unvaccinated about 50 per cent. Statistics of children carry great weight, because the evidence of vaccination and non-vaccination is more recent and reliable, and because the protective influence of the operation has not worn off. In the House of Commons, in May last, Sir Walter Foster stated that, at Leicester, twenty-two of the attendants on smallpox patients were either re-vaccinated or protected by having had smallpox and not one of them had been attacked; six refused to be re-vaccinated, and of these four had been attacked and one had died.

A telling circumstance is within my knowledge and is borne out by registers now extant:—A village in Leicestershire, well known to me, with 1,300 inhabitants, was visited by smallpox in 1872. In this village, at that time, all but two persons were vaccinated, and of the 1,300 two only died of the epidemic, and these two were the two unvaccinated persons, one 30 and the other 32 years of age. I was much impressed with a case

which came under my observation the same year. A servant at an hotel nursed a sick visitor when it was manifest that the illness was smallpox, she was re-vaccinated, she had smallpox but in a most mild form—the two diseases were present at the same time and seemed to modify each other.

On the other hand, I have seen the vaccinated have smallpox, be disfigured by it, and die. The four worst cases of disfigurement I have seen have been in the vaccinated; but in all these cases there had been only infantile vaccination, and all were between 19 and 25 years of age when attacked. My belief is that vaccination efficiently performed, with good lymph, diminishes susceptibility to smallpox; that the effects of infantile vaccination are worn out at puberty; that vaccination, for a limited but at present unknown period of time, modifies an attack of smallpox, and reduces the death-rate of those attacked. At the same time I fully sympathise with those who ask for a re-examination of the whole question, a repetition of the old experiments, and a searching investigation of every epidemic, by men with open minds and by men from both sides of the question; for vaccination now stands on statistics. If the principle of vaccination is sound, our practice of it is far from perfect; statistics the most favourable to vaccination give the enemies of vaccination an occasion to cry out. If there is anything in vaccination, there is in it not only protection against smallpox, but a vital principle probably capable of extension to other infectious diseases. If Jenner was right, we are wrong. Hear the words of Jenner.

Jenner, after apologising for those sceptical of his discovery on its first announcement, writes:—"But now, when that scrutiny has taken place not only among ourselves, but in the first professional circles in Europe, and when it has been uniformly found in such abundant instances that the human frame, when once it has felt the influence of genuine cowpox in the way that has been described, is never afterwards at any period of its existence assailable by the smallpox, may I not with perfect confidence congratulate my country and society at large on their

beholding, in the mild form of the cowpox, an antidote that is capable of extirpating from the earth a disease which is every hour devouring its victims—a disease that has ever been considered as the severest scourge to the human race?"

It would be idle to pretend that our present statistics, while pronouncing in favour of vaccination, satisfy Jenner's requirements, and this being so we naturally question the mode of operation and the virtue of the lymph now in use. I believe the experience of Marson as to the number of cicatrices desirable is officially ignored, and that one scar meets the demand of the legislature. There is a growing belief in the necessity for re-vaccination, and Dr. Corfield, in an address delivered at University College, London, charges modern outbreaks of smallpox in this country to our neglect of it. As to the source of the lymph now in use I know nothing beyond the fact that some is imported from foreign countries, some comes from this, some from that, chemist.

Let us turn now to Cholera, the most fatal of our epidemic diseases, slaying, as it does at some periods of some epidemics, one half of those attacked. It is always imported into this country. Cases have been reported as having originated here; but in spite of well-marked symptoms unless a supposed case can be traced to a previous case, or can be shewn to propagate the disease, the diagnosis of cholera must always be viewed with suspicion. Cholera leaving its home in India, dogs the steps of man in its march to other countries, and I cannot but think myself that its germs are conveyed from country to country, from district to district, principally inside man. I do not mean to say that fresh articles of food and recently worn apparel may not convey the germs from place to place, but I doubt if these are often the chariots of cholera germs from locality to locality. How the cholera bacilli find their way from individual to individual is yet a mystery, though there is probably truth in Mr. Ernest Hart's trite saying, that "we eat and drink them." Filthy conditions and moisture seem however essential to their interim existence. The bacilli having effected an entrance into

the human body, lodge, increase and multiply in the alimentary canal; the alvine secretions from a cholera patient contain these bacilli in profusion and act as a temporary depot until they in their turn are scattered abroad to the spread of the disease. Medical inspection of incoming ships and isolation are our principal preventive methods against the invasion and dissemination of cholera, for it has been found that even such a system of quarantine as would seriously damage the trade of our country would be of no avail in preventing an invasion of cholera; and but for the energetic action of our Local Government Board, and Port Sanitary Medical Officers in inspecting vessels from infected districts, and in isolating a few suspicious cases, we should doubtless have been visited by a cholera epidemic last year. For cholera we have had no specific treatment, nor can we do much in the way of supporting our patient, seeing that the vomiting and purging prevent us supplying nourishment to the system; we naturally turn to the bacteriologists. M. Haffkine has prepared from cholera-bacillus-cultivations vaccines which in animals enable the system to tolerate cholera artificially induced in them; he has proved also that these vaccines are innocucus in man, and now it remains to be proved whether they are protective in man as in animals, and if so, for how long the protection lasts.

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I would not have you infer from what I have said that I believe any of the vaccination processes for the prevention, mitigation, or cure of any of the infectious diseases, from vaccination against smallpox to anti-choleraic vaccination, are at present perfected. I do not think they are. The ways of microbes are dark but not past finding out; and the apparent failure of any one method of dealing with a particular infectious disease by a vaccine, through imperfection of detail, must not shake our confidence in bacteriological science generally.

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In the meantime it behoves us to study the modes of dissemination of the germs of infectious diseases and their entrance doors into the body in order that by isolation, disinfection, and other sanitary measures we may prevent and limit outbreaks. There are two diseases, diphtheria and scarlet fever, which, in spite of all our sanitary reforms, are ever rampant in our midst.

Investigation into the distribution of some outbreaks of these diseases have tracked them both to the cow, and the milkman and the pump have both been blamed; but of late a suspicion has been raised that the milk has been infected before it left the cow, and in some instances suspected milk has been traced to sick cows. This, however, is a problem for the future.

With regard to the ingress of germs into the body, it seems reasonable to think that in some kinds of infectious disease local manifestations mark the spot where the microbes creep into the system. This is undoubtedly the case in inoculated smallpox, vaccinia, syphilis, and erysipelas; and do not the bowel symptoms in cholera and enteric fever, the throat symptoms in diphtheria and scarlet fever, and the conjunctival and nasal symptoms in measles lead us to suspect where, in these cases, the microbes effect an entrance into the system.

It becomes more and more evident, day by day, that there is an unseen world around us, populated by parasites, many of which our present microscopes, with their highest powers, do not enable us to discern. To those who only believe in the existence of objects which they can behold with the unaided eye, such a suggestion might savour of the fantastic and incredible; to them the association of life with the infinitely small and invisible might appear unworthy of credence, but when the difference in size among living organisms in the seen world is contemplated—when the Elephant is compared with the Acarus, the marvel of the gap between the Acarus and the smallest bacterial germ disappears. We are frequently, especially in our large towns, exposed to specific disease-producing germs which are ever ready to make our bodies their home, and yet when so exposed we may escape unarmed, and how do we thus escape? The generally-accepted law, that two factors are necessary for the development of an infectious disease, namely, a specific germ and a suitable soil, is both probable and comforting; and this law applies throughout creation. We know that a hen comes only from a hen's egg; we know also that the egg, to be hatched, must be placed under favourable conditions. There are in this city at the present moment any number of hen's eggs which will never develop into chickens; some for want of favourable conditions only, some—not a few—from having lost their vitality from long keeping. There is reason to think that the human system in a

state of health and vigour is not open to attack by most of the pathogenic micro-organisms, nor finds breeding-ground for them. On some such an assumption as this was doubtless founded the usual and desirable practice of post-prandial visits to infectious cases, when the tissues of the practitioner are at their best, and best able to resist microbes. It seems probable that it is only when the system is run down, and the vitality of the tissues is lowered, that these become vulnerable; that when the blood is fouled by impure atmosphere, the circulation is slack and the nervous system unstrung; then it is that pathogenic microbes effect an entrance and secure a hold. The bearing of bacteriology on diseases of animals, on commerce, and agriculture is beyond the scope of my undertaking; but I venture to say that the development of bacteriology as a recognised branch of science is every day becoming of more pressing necessity, and calls for state help.

Gentlemen,—At the commencement of my Address I asked your indulgence to the subject I had selected; I now feel that I owe you an apology for the way in which I have dealt with it and the length to which it has run. But if any words of mine should give rein to your thoughts on this subject, my aim will have been gained.

REPORTS OF CASES.

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CASE OF PRIMARY CARCINOMA OF LUNG, WITH SECONDARY DEPOSITS IN LIVER, BRAIN, AND SCAPULA.

ROBERT M. SIMON, M.D.
PHYSICIAN TO THE GENERAL HOSPITAL, BIRMINGHAM.

The extraordinary rapidity of the development of the disease—for the patient died within two months of feeling ill for the first time—and the very extensive diffusion of cancer, make it desirable to publish the case. For the very exhaustive and careful pathological report I am indebted to Dr. Stanley, Pathologist to the General Hospital; and the notes of the case I owe to Dr. Brockbank and my Clinical Clerk, Mr. Satchell.

The patient was a man--J. B., aged 44—who had enjoyed good health until five weeks before seeking admission to the hospital. At that time he consulted a doctor on account of abdominal pain, and because his water was thick, scanty, and high coloured. As he did not improve, he attended at the General Hospital as an out-patient, and was admitted on May 31st, 1893. He rapidly got weaker, and died on June 7th.

June 1st. *Condition on admission.*—Patient is of medium height, sparely developed, and rather emaciated. Has a well-marked cachectic look, with many venæ stellatæ on the cheeks and nose. The veins on the body also are rather prominent, but not varicose. Some exophthalmos of the left eye and inequality of the pupils, the left being larger than the right. No jaundice, and a slight amount of œdema is present over the sacrum only. The left scapula is enlarged as by a new growth, and there is a small tumour in the fascia of the left arm. Axillary glands not enlarged apparently.

the faith that is in us. The consideration of the question in its scientific aspect involves reliance on observations made a long time ago, when criticism, though violent, was not so severe as now; one such observation showing that human smallpox may be transferred to the cow by contagion, by exposing the animal to clothing from a smallpox patient, and many others which have at one time had credit, are now not generally accepted. Before an opinion can be formed from the scientific aspect of the subject many experiments would have to be repeated, many questions would have to be thought out. For instance: Is our present vaccinia cultivated cowpox? that is to say, is the lymph now in use humanised cowpox lymph or cowpox lymph, the stock of which has been kept up by heifer inoculation? Is cowpox a disease arising spontaneously in the cow. Is cowpox in the cow the same disease as smallpox in man? Is cowpox inoculated human smallpox?

It is said by some that cowpox is a local disease and non-contagious, that smallpox is a general disease and contagious, and that, therefore, the two diseases cannot be the same; but we have learnt of late years how disease may be modified by cultivation, and history tells us of the great difference between inoculated smallpox and natural smallpox; moreover, we know of no disease in man which protects him from a different disease or even modifies an attack of a different disease; and a strong argument to my mind that cowpox is inoculated human smallpox is the recorded fact that stocks of lymph raised by variolating the cow have been extensively used for vaccination and have produced vaccinia to all appearances the same as that from cowpox lymph and bestowing the same protective influence.

The view that cowpox in the cow is inoculated smallpox explains the rarity of cowpox at the present time, inasmuch as persons do not now, as formerly, follow their occupations while suffering from smallpox; and, should this view prove to be correct, the value of Jenner's discovery would be much enhanced from a scientific standpoint.

In weighing the claims of vaccination my mind has been

largely influenced by Jenner's experiments, by statistics, especially recent ones, and by my own limited observations. Jenner vaccinated and then tried in vain to variolate. It would be well if we were permitted to repeat his experiments and so settle the question, but the law forbids. There are some startling statistics in Dr. Barry's report of the smallpox epidemic at Sheffield, 1887–88. From his report of that epidemic, it appears that of the vaccinated inhabitants of Sheffield 1½ per cent. were attacked with smallpox, of the unvaccinated about 10 per cent.; that of those attacked the mortality of the vaccinated was about 5 per cent., of the unvaccinated about 50 per cent.; that of children under five years of age attacked not one per cent. of the vaccinated died, whereas of the unvaccinated over 50 per cent. died; all the employees in the Post Office, 290 in number, who had all been re-vaccinated on entering the service, escaped the disease. The report of the Royal Commission on Vaccination, 1890, shows that of the children under ten years of age admitted into the Hampstead Hospital with smallpox, 1876-7-8, the mortality of the vaccinated was about 3 per cent., of the unvaccinated about 50 per cent. Statistics of children carry great weight, because the evidence of vaccination and non-vaccination is more recent and reliable, and because the protective influence of the operation has not worn off. In the House of Commons, in May last, Sir Walter Foster stated that, at Leicester, twenty-two of the attendants on smallpox patients were either re-vaccinated or protected by having had smallpox and not one of them had been attacked; six refused to be re-vaccinated, and of these four had been attacked and one had died.

A telling circumstance is within my knowledge and is borne out by registers now extant:—A village in Leicestershire, well known to me, with 1,300 inhabitants, was visited by smallpox in 1870. In this village, at that time, all but two persons were vaccinated, and of the 1,300 two only died of the epidemic, and these two were the two unvaccinated persons, one 30 and the other 32 years of age. I was much impressed with a case

which came under my observation the same year. A servant at an hotel nursed a sick visitor when it was manifest that the illness was smallpox, she was re-vaccinated, she had smallpox but in a most mild form—the two diseases were present at the same time and seemed to modify each other.

On the other hand, I have seen the vaccinated have smallpox, be disfigured by it, and die. The four worst cases of disfigurement I have seen have been in the vaccinated; but in all these cases there had been only infantile vaccination, and all were between 19 and 25 years of age when attacked. My belief is that vaccination efficiently performed, with good lymph, diminishes susceptibility to smallpox; that the effects of infantile vaccination are worn out at puberty; that vaccination, for a limited but at present unknown period of time, modifies an attack of smallpox, and reduces the death-rate of those attacked. At the same time I fully sympathise with those who ask for a re-examination of the whole question, a repetition of the old experiments, and a searching investigation of every epidemic, by men with open minds and by men from both sides of the question; for vaccination now stands on statistics. If the principle of vaccination is sound, our practice of it is far from perfect; statistics the most favourable to vaccination give the enemies of vaccination an occasion to cry out. If there is anything in vaccination, there is in it not only protection against smallpox, but a vital principle probably capable of extension to other infectious diseases. If Jenner was right, we are wrong. Hear the words of Jenner.

Jenner, after apologising for those sceptical of his discovery on its first announcement, writes:—"But now, when that scrutiny has taken place not only among ourselves, but in the first professional circles in Europe, and when it has been uniformly found in such abundant instances that the human frame, when once it has felt the influence of genuine cowpox in the way that has been described, is never afterwards at any period of its existence assailable by the smallpox, may I not with perfect confidence congratulate my country and society at large on their

beholding, in the mild form of the cowpox, an antidote that is capable of extirpating from the earth a disease which is every hour devouring its victims—a disease that has ever been considered as the severest scourge to the human race?"

It would be idle to pretend that our present statistics, while pronouncing in favour of vaccination, satisfy Jenner's requirements, and this being so we naturally question the mode of operation and the virtue of the lymph now in use. I believe the experience of Marson as to the number of cicatrices desirable is officially ignored, and that one scar meets the demand of the legislature. There is a growing belief in the necessity for re-vaccination, and Dr. Corfield, in an address delivered at University College, London, charges modern outbreaks of smallpox in this country to our neglect of it. As to the source of the lymph now in use I know nothing beyond the fact that some is imported from foreign countries, some comes from this, some from that, chemist.

Let us turn now to Cholera, the most fatal of our epidemic diseases, slaying, as it does at some periods of some epidemics, one half of those attacked. It is always imported into this country. Cases have been reported as having originated here; but in spite of well-marked symptoms unless a supposed case can be traced to a previous case, or can be shewn to propagate the disease, the diagnosis of cholera must always be viewed with suspicion. Cholera leaving its home in India, dogs the steps of man in its march to other countries, and I cannot but think myself that its germs are conveyed from country to country, from district to district, principally inside man. I do not mean to say that fresh articles of food and recently worn apparel may not convey the germs from place to place, but I doubt if these are often the chariots of cholera germs from locality to locality. How the cholera bacilli find their way from individual to individual is yet a mystery, though there is probably truth in Mr. Ernest Hart's trite saying, that "we eat and drink them." Filthy conditions and moisture seem however essential to their interim existence. The bacilli having effected an entrance into

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afterwards and thereby proof against smallpox. He saw that cowpox in man produced a more trifling ailment than inoculated smallpox, no danger to life, no spread by contagion.

It is not surprising that his synthetical mind should have suggested, why not inoculate with cowpox lymph instead of variolus lymph. In 1798 Jenner goes into print with the title of "Enquiries into the Causes and Effects of the Variola Vaccina, a disease discovered in some of the Western Counties of England, particularly Gloucestershire, and known by the name of the Cowpox." In this publication he gives an account of his first vaccination, and states how that he lost his stock of lymph and was therefore prevented from repeating his experiment until March, 1798, when he inoculated a boy with cowpox lymph straight from a pock on the teat of a cow. The inoculation succeeded, and from vesicles on this boy he inoculated others, and from them others, and for aught I know you and I have been vaccinated from the same stock of lymph.

Unfortunately, at the commencement of his researches, Jenner's mind was hampered by the idea that cowpox in the cow was developed by inoculation with matter from the heels of horses suffering from a disease called the Grease; but he lived to find his theory of the horse-grease origin of cowpox erroneous; and even while holding to the horse-grease origin of cowpox, it is clear, from the Latin appellation he gave to the latter disease (Variolæ Vaccinæ), that it was in his mind that cowpox might be smallpox of the cow.

It would be foreign to my purpose to go into all the attempts that were made to rob Jenner of his laurels, the multitudinous attacks on his system, the numberless experiments which were made, and which seemed to prove conclusively anything and everything both for and against his doctrine; and are they not written in Crookshank on Vaccination? It was said that he was not the first to inoculate man with cowpox; and perhaps he was not. There is historic evidence that a farmer, named Benjamin Jesty, as early as 1774, performed the operation on his wife and two sons as a protection against smallpox; but to Jenner is

undoubtedly due the credit of introducing vaccination to the public and getting their assent to its practice. He first used humanised cowpox lymph, and kept up the supply by arm-to-arm vaccination; and but for an arm-to-arm vaccination, vaccination must have collapsed, inasmuch as cowpox is a very rare disease—so rare that, although I have been in touch with some dairy districts for over twenty years, I have never had an opportunity of seeing a case.

I must not omit mention of the action of our Association in the matter. It appointed a committee to consider the question and to examine the evidence; Barron, the biographer of Jenner, was chairman; and its report, which appeared in 1839, set forth that cowpox in man secured him from subsequent attacks of smallpox; it affirmed the identity of the two diseases; it pointed out that while horse-grease did not produce cowpox, there was a disease of horses called horsepox which afforded the same protection as cowpox; it supported vaccination by statistics.

There were failures in vaccinal protection in Jenner's time; he met them by ascribing them to the use of lymph from spurious cowpox, the lymph of which was not protective. In the year 1845 Doctor Badcock, of Brighton, had smallpox himself three months after vaccination, and he found failures in others. He concluded that the lymph in use was getting worn out; he raised a new stock by variolating a cow, and this lymph was extensively used.

In 1853 Marson, of the London Smallpox Hospital, explained failures by the insufficient application of the lymph, and said that security might be measured by the number of cicatrices. He found that while the mortality of those with one scar was 7½ per cent., that of those with four scars was less than 1 per cent.

What, I would ask, is our position now in regard to vaccination? Maybe some of the profession are satisfied to practise on authority and are pleased to be spared the time and trouble of thinking; the bulk of us, however, desire to have a reason for

the faith that is in us. The consideration of the question in its scientific aspect involves reliance on observations made a long time ago, when criticism, though violent, was not so severe as now; one such observation showing that human smallpox may be transferred to the cow by contagion, by exposing the animal to clothing from a smallpox patient, and many others which have at one time had credit, are now not generally accepted. Before an opinion can be formed from the scientific aspect of the subject many experiments would have to be repeated, many questions would have to be thought out. For instance: Is our present vaccinia cultivated cowpox? that is to say, is the lymph now in use humanised cowpox lymph or cowpox lymph, the stock of which has been kept up by heifer inoculation? Is cowpox a disease arising spontaneously in the cow. Is cowpox in the cow the same disease as smallpox in man? Is cowpox inoculated human smallpox?

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largely influenced by Jenner's experiments, by statistics, especially recent ones, and by my own limited observations. Jenner vaccinated and then tried in vain to variolate. It would be well if we were permitted to repeat his experiments and so settle the question, but the law forbids. There are some startling statistics in Dr. Barry's report of the smallpox epidemic at Sheffield, 1887–88. From his report of that epidemic, it appears that of the vaccinated inhabitants of Sheffield 1½ per cent. were attacked with smallpox, of the unvaccinated about 10 per cent.; that of those attacked the mortality of the vaccinated was about 5 per cent., of the unvaccinated about 50 per cent.; that of children under five years of age attacked not one per cent. of the vaccinated died, whereas of the unvaccinated over 50 per cent. died; all the employees in the Post Office, 290 in number, who had all been re-vaccinated on entering the service, escaped the disease. The report of the Royal Commission on Vaccination, 1890, shows that of the children under ten years of age admitted into the Hampstead Hospital with smallpox, 1876-7-8, the mortality of the vaccinated was about 3 per cent., of the unvaccinated about 50 per cent. Statistics of children carry great weight, because the evidence of vaccination and non-vaccination is more recent and reliable, and because the protective influence of the operation has not worn off. In the House of Commons, in May last, Sir Walter Foster stated that, at Leicester, twenty-two of the attendants on smallpox patients were either re-vaccinated or protected by having had smallpox and not one of them had been attacked; six refused to be re-vaccinated, and of these four had been attacked and one had died.

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On the other hand, I have seen the vaccinated have smallpox, be disfigured by it, and die. The four worst cases of disfigurement I have seen have been in the vaccinated; but in all these cases there had been only infantile vaccination, and all were between 19 and 25 years of age when attacked. My belief is that vaccination efficiently performed, with good lymph, diminishes susceptibility to smallpox; that the effects of infantile vaccination are worn out at puberty; that vaccination, for a limited but at present unknown period of time, modifies an attack of smallpox, and reduces the death-rate of those attacked. At the same time I fully sympathise with those who ask for a re-examination of the whole question, a repetition of the old experiments, and a searching investigation of every epidemic, by men with open minds and by men from both sides of the question; for vaccination now stands on statistics. If the principle of vaccination is sound, our practice of it is far from perfect; statistics the most favourable to vaccination give the enemies of vaccination an occasion to cry out. If there is anything in vaccination, there is in it not only protection against smallpox, but a vital principle probably capable of extension to other infectious diseases. If Jenner was right, we are wrong. Hear the words of Jenner.

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the human body, lodge, increase and multiply in the alimentary canal; the alvine secretions from a cholera patient contain these bacilli in profusion and act as a temporary depot until they in their turn are scattered abroad to the spread of the disease. Medical inspection of incoming ships and isolation are our principal preventive methods against the invasion and dissemination of cholera, for it has been found that even such a system of quarantine as would seriously damage the trade of our country would be of no avail in preventing an invasion of cholera; and but for the energetic action of our Local Government Board, and Port Sanitary Medical Officers in inspecting vessels from infected districts, and in isolating a few suspicious cases, we should doubtless have been visited by a cholera epidemic last year. For cholera we have had no specific treatment, nor can we do much in the way of supporting our patient, seeing that the vomiting and purging prevent us supplying nourishment to the system; we naturally turn to the bacteriologists. M. Haffkine has prepared from cholera-bacillus-cultivations vaccines which in animals enable the system to tolerate cholera artificially induced in them; he has proved also that these vaccines are innocucus in man, and now it remains to be proved whether they are protective in man as in animals, and if so, for how long the protection lasts.

And now a word on hydrophobia, the king of terrors in diseases—cruel in its manifestations, horrible in its death—for the cure or mitigation of which no drugs avail. It is, according to my definition, an infectious disease, though the infection is conveyed, as far as we know, only by inoculation. There is, to my mind, no room for doubt as to its being microbic in its nature; and while the specific microbes have not as yet been isolated, it is clear that they are the same as those which cause rabies in dogs. The inoculation with rabies-virus produces rabies in animals, and no doubt hydrophobia in man. Pasteur professes to have succeeded in preparing a vaccine of rabies-virus which, while not producing symptoms of hydrophobia in man, when applied soon after the bite of mad dog, prevents the

subsequent development of hydrophobic symptoms. The value of this method of treatment will have to be decided by statistics, which so far are encouraging. At the Pasteur Institute the mortality among persons bitten by animals known to be rabid and submitted to this treatment is said now to be less than 1 per cent.

Somewhat akin to hydrophobia is tetanus, for which all the drugs in the pharmacopœia have in vain been tried. Here a distinctive bacillus has been found, and animals inoculated with the cultures of the bacillus have developed tetanus. At the same time, by gradual vaccination with these cultures animals may be made proof against the disease.

Tizzoni and Cattani profess to have obtained from the blood of dogs thus rendered immune against tetanus a substance called by them tetanus antitoxin, which is said to have cured animals and men affected by the disease after its symptoms have shewn themselves.

For diphtheria and enteric fever no vaccines have as yet been found. But bacteriologists now profess to be able to determine the presence of these diseases by examination of secretions before the clinical symptoms warrant a diagnosis; and in the case of tuberculosis, though no preventive or curative vaccine has been discovered, the help which bacteriologists give us in diagnosing this disease is of signal service. Let me cite two cases.

A very healthy-looking girl, at the end of a smart attack of measles, suddenly developed a cough and slight expectoration; crepitation was heard over the whole chest. The diagnosis seemed to lie between bronchitis and catarrhal pneumonia. Dr. Russell, my colleague, then House Physician, reported that the sputum contained tubercle bacilli. She died a year subsequently of tubercular phthisis.

Again, in a case where the symptoms pointed equally to enteric fever and pulmonary tuberculosis, and the treatment and prognosis depended upon the diagnosis, the negative result of the examination of the sputum correctly shewed the case to be one of enteric fever.

diseases by the microscope and by cultures, we are forced to the conclusion that these diseases are caused by living organisms by the fact that in every infectious disease a developmental period is essential; and the duration of that period in each case is becoming known. We know that if a person, a week after exposure to the contagium of smallpox, shews smallpox pustules, the smallpox is not the result of the exposure a week previously, because the week could not have sufficed for the incubation of the disease and the development of the pustules. This incubative period can, to my mind, only be explained by the growth or multiplication of a living organism. All lifeless poisons, as strychnine and arsenic, require no time for incubation, but shew their effect at once; their symptoms are synchronous with absorption. The fixed period of the incubative stage and the duration of illness, which varies within narrow limits in most of the infectious diseases, seem to argue in favour of their microbic origin. These features lend colour to the conception of the growth and death of a living organism, its death being the result of a poison secreted by itself, or of starvation of the parasite from its having completely consumed some constituent of the body upon which it feeds. This latter view would go to explain the phenomenon of immunity, which is difficult to explain on other grounds. The immunity afforded by an attack of an infectious disease against a future attack of the same disease is, to my mind, further evidence of its microbic origin; for we know of no inanimate poison which will afford such immunity against its own future action.

The study of bacteriology is a gigantic undertaking and quite outside individual enterprise: the necessary appliances, the character of the experiments, the nature of the observations make it a specialism. We are now anxiously waiting for knowledge from the bacteriologist, who is endeavouring to learn the life history of microbes, the conditions favourable and prejudicial to their existence, agents which will destroy them or neutralise the poisons which they produce, or some method by which the human organism may be protected against the attacks of these

parasites. The undertaking is not likely to be one of rapid accomplishment.—"To climb steep hills requires slow pace at first."

I wish now to refer, in some detail, to one or two of the infectious diseases, and first I propose to dwell at some length on smallpox and its preventive treatment by vaccination. Let us first take a cursory glance at the history of vaccination. The ravages of smallpox were met in by-gone times by inoculating the healthy with smallpox to produce an attack of the disease which was of a mild character but yet protected the system against future attacks. When and where variolation was first in operation history does not say. There is no doubt that Lady Mary Wortley Montague introduced it into this country in the early part of last century, and that it was extensively carried on here in the latter part of that century and that the practice was continued up to 1840, when Parliament prohibited it. While variolation produced very mild attacks, little disfigurement, a mortality of about only one in five hundred and as much security as an attack of the disease acquired by contagion, yet it obviously increased the number of cases of smallpox by giving it to those who would not otherwise have had it, and these, in their turn, spreading it by contagion.

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Let us pause for a moment to speculate on the working of Jenner's mind at this time. He saw the trivial effects of inoculated smallpox and the security which this variolation afforded against subsequent attacks of smallpox. His ears were open to the common talk in the dairy districts that those milkers who had casually inoculated their fingers with cowpox were

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Unfortunately, at the commencement of his researches, Jenner's mind was hampered by the idea that cowpox in the cow was developed by inoculation with matter from the heels of horses suffering from a disease called the Grease; but he lived to find his theory of the horse-grease origin of cowpox erroneous; and even while holding to the horse-grease origin of cowpox, it is clear, from the Latin appellation he gave to the latter disease (Variolæ Vaccinæ), that it was in his mind that cowpox might be smallpox of the cow.

It would be foreign to my purpose to go into all the attempts that were made to rob Jenner of his laurels, the multitudinous attacks on his system, the numberless experiments which were made, and which seemed to prove conclusively anything and everything both for and against his doctrine; and are they not written in Crookshank on Vaccination? It was said that he was not the first to inoculate man with cowpox; and perhaps he was not. There is historic evidence that a farmer, named Benjamin Jesty, as early as 1774, performed the operation on his wife and two sons as a protection against smallpox; but to Jenner is

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I must not omit mention of the action of our Association in the matter. It appointed a committee to consider the question and to examine the evidence; Barron, the biographer of Jenner, was chairman; and its report, which appeared in 1839, set forth that cowpox in man secured him from subsequent attacks of smallpox; it affirmed the identity of the two diseases; it pointed out that while horse-grease did not produce cowpox, there was a disease of horses called horsepox which afforded the same protection as cowpox; it supported vaccination by statistics.

There were failures in vaccinal protection in Jenner's time; he met them by ascribing them to the use of lymph from spurious cowpox, the lymph of which was not protective. In the year 1845 Doctor Badcock, of Brighton, had smallpox himself three months after vaccination, and he found failures in others. He concluded that the lymph in use was getting worn out; he raised a new stock by variolating a cow, and this lymph was extensively used.

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What, I would ask, is our position now in regard to vaccination? Maybe some of the profession are satisfied to practise on authority and are pleased to be spared the time and trouble of thinking; the bulk of us, however, desire to have a reason for

the faith that is in us. The consideration of the question in its scientific aspect involves reliance on observations made a long time ago, when criticism, though violent, was not so severe as now; one such observation showing that human smallpox may be transferred to the cow by contagion, by exposing the animal to clothing from a smallpox patient, and many others which have at one time had credit, are now not generally accepted. Before an opinion can be formed from the scientific aspect of the subject many experiments would have to be repeated, many questions would have to be thought out. For instance: Is our present vaccinia cultivated cowpox? that is to say, is the lymph now in use humanised cowpox lymph or cowpox lymph, the stock of which has been kept up by heifer inoculation? Is cowpox a disease arising spontaneously in the cow. Is cowpox in the cow the same disease as smallpox in man? Is cowpox inoculated human smallpox?

It is said by some that cowpox is a local disease and non-contagious, that smallpox is a general disease and contagious, and that, therefore, the two diseases cannot be the same; but we have learnt of late years how disease may be modified by cultivation, and history tells us of the great difference between inoculated smallpox and natural smallpox; moreover, we know of no disease in man which protects him from a different disease or even modifies an attack of a different disease; and a strong argument to my mind that cowpox is inoculated human smallpox is the recorded fact that stocks of lymph raised by variolating the cow have been extensively used for vaccination and have produced vaccinia to all appearances the same as that from cowpox lymph and bestowing the same protective influence.

The view that cowpox in the cow is inoculated smallpox explains the rarity of cowpox at the present time, inasmuch as persons do not now, as formerly, follow their occupations while suffering from smallpox; and, should this view prove to be correct, the value of Jenner's discovery would be much enhanced from a scientific standpoint.

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It is said by some that cowpox is a local disease and non-contagious, that smallpox is a general disease and contagious, and that, therefore, the two diseases cannot be the same; but we have learnt of late years how disease may be modified by cultivation, and history tells us of the great difference between inoculated smallpox and natural smallpox; moreover, we know of no disease in man which protects him from a different disease or even modifies an attack of a different disease; and a strong argument to my mind that cowpox is inoculated human smallpox is the recorded fact that stocks of lymph raised by variolating the cow have been extensively used for vaccination and have produced vaccinia to all appearances the same as that from cowpox lymph and bestowing the same protective influence.

The view that cowpox in the cow is inoculated smallpox explains the rarity of cowpox at the present time, inasmuch as persons do not now, as formerly, follow their occupations while suffering from smallpox; and, should this view prove to be correct, the value of Jenner's discovery would be much enhanced from a scientific standpoint.

In weighing the claims of vaccination my mind has been

largely influenced by Jenner's experiments, by statistics, especially recent ones, and by my own limited observations. Jenner vaccinated and then tried in vain to variolate. It would be well if we were permitted to repeat his experiments and so settle the question, but the law forbids. There are some startling statistics in Dr. Barry's report of the smallpox epidemic at Sheffield, 1887–88. From his report of that epidemic, it appears that of the vaccinated inhabitants of Sheffield 1½ per cent. were attacked with smallpox, of the unvaccinated about 10 per cent.; that of those attacked the mortality of the vaccinated was about 5 per cent., of the unvaccinated about 50 per cent.; that of children under five years of age attacked not one per cent. of the vaccinated died, whereas of the unvaccinated over 50 per cent. died; all the employees in the Post Office, 290 in number, who had all been re-vaccinated on entering the service, escaped the disease. The report of the Royal Commission on Vaccination, 1890, shows that of the children under ten years of age admitted into the Hampstead Hospital with smallpox, 1876-7-8, the mortality of the vaccinated was about 3 per cent., of the unvaccinated about 50 per cent. Statistics of children carry great weight, because the evidence of vaccination and non-vaccination is more recent and reliable, and because the protective influence of the operation has not worn off. In the House of Commons, in May last, Sir Walter Foster stated that, at Leicester, twenty-two of the attendants on smallpox patients were either re-vaccinated or protected by having had smallpox and not one of them had been attacked; six refused to be re-vaccinated, and of these four had been attacked and one had died.

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beholding, in the mild form of the cowpox, an antidote that is capable of extirpating from the earth a disease which is every hour devouring its victims—a disease that has ever been considered as the severest scourge to the human race?"

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the human body, lodge, increase and multiply in the alimentary canal; the alvine secretions from a cholera patient contain these bacilli in profusion and act as a temporary depot until they in their turn are scattered abroad to the spread of the disease. Medical inspection of incoming ships and isolation are our principal preventive methods against the invasion and dissemination of cholera, for it has been found that even such a system of quarantine as would seriously damage the trade of our country would be of no avail in preventing an invasion of cholera; and but for the energetic action of our Local Government Board, and Port Sanitary Medical Officers in inspecting vessels from infected districts, and in isolating a few suspicious cases, we should doubtless have been visited by a cholera epidemic last year. For cholera we have had no specific treatment, nor can we do much in the way of supporting our patient, seeing that the vomiting and purging prevent us supplying nourishment to the system; we naturally turn to the bacteriologists. M. Haffkine has prepared from cholera-bacillus-cultivations vaccines which in animals enable the system to tolerate cholera artificially induced in them; he has proved also that these vaccines are innocuous in man, and now it remains to be proved whether they are protective in man as in animals, and if so, for how long the protection lasts.

And now a word on hydrophobia, the king of terrors in diseases—cruel in its manifestations, horrible in its death—for the cure or mitigation of which no drugs avail. It is, according to my definition, an infectious disease, though the infection is conveyed, as far as we know, only by inoculation. There is, to my mind, no room for doubt as to its being microbic in its nature; and while the specific microbes have not as yet been isolated, it is clear that they are the same as those which cause rabies in dogs. The inoculation with rabies-virus produces rabies in animals, and no doubt hydrophobia in man. Pasteur professes to have succeeded in preparing a vaccine of rabies-virus which, while not producing symptoms of hydrophobia in man, when applied soon after the bite of mad dog, prevents the

subsequent development of hydrophobic symptoms. The value of this method of treatment will have to be decided by statistics, which so far are encouraging. At the Pasteur Institute the mortality among persons bitten by animals known to be rabid and submitted to this treatment is said now to be less than 1 per cent.

Somewhat akin to hydrophobia is tetanus, for which all the drugs in the pharmacopœia have in vain been tried. Here a distinctive bacillus has been found, and animals inoculated with the cultures of the bacillus have developed tetanus. At the same time, by gradual vaccination with these cultures animals may be made proof against the disease.

Tizzoni and Cattani profess to have obtained from the blood of dogs thus rendered immune against tetanus a substance called by them tetanus antitoxin, which is said to have cured animals and men affected by the disease after its symptoms have shewn themselves.

For diphtheria and enteric fever no vaccines have as yet been found. But bacteriologists now profess to be able to determine the presence of these diseases by examination of secretions before the clinical symptoms warrant a diagnosis; and in the case of tuberculosis, though no preventive or curative vaccine has been discovered, the help which bacteriologists give us in diagnosing this disease is of signal service. Let me cite two cases.

A very healthy-looking girl, at the end of a smart attack of measles, suddenly developed a cough and slight expectoration; crepitation was heard over the whole chest. The diagnosis seemed to lie between bronchitis and catarrhal pneumonia. Dr. Russell, my colleague, then House Physician, reported that the sputum contained tubercle bacilli. She died a year subsequently of tubercular phthisis.

Again, in a case where the symptoms pointed equally to enteric fever and pulmonary tuberculosis, and the treatment and prognosis depended upon the diagnosis, the negative result of the examination of the sputum correctly shewed the case to be one of enteric fever.

diseases by the microscope and by cultures, we are forced to the conclusion that these diseases are caused by living organisms by the fact that in every infectious disease a developmental period is essential; and the duration of that period in each case is becoming known. We know that if a person, a week after exposure to the contagium of smallpox, shews smallpox pustules, the smallpox is not the result of the exposure a week previously, because the week could not have sufficed for the incubation of the disease and the development of the pustules. This incubative period can, to my mind, only be explained by the growth or multiplication of a living organism. All lifeless poisons, as strychnine and arsenic, require no time for incubation, but shew their effect at once; their symptoms are synchronous with absorption. The fixed period of the incubative stage and the duration of illness, which varies within narrow limits in most of the infectious diseases, seem to argue in favour of their microbic origin. These features lend colour to the conception of the growth and death of a living organism, its death being the result of a poison secreted by itself, or of starvation of the parasite from its having completely consumed some constituent of the body upon which it feeds. This latter view would go to explain the phenomenon of immunity, which is difficult to explain on other grounds. The immunity afforded by an attack of an infectious disease against a future attack of the same disease is, to my mind, further evidence of its microbic origin; for we know of no inanimate poison which will afford such immunity against its own future action.

The study of bacteriology is a gigantic undertaking and quite outside individual enterprise: the necessary appliances, the character of the experiments, the nature of the observations make it a specialism. We are now anxiously waiting for knowledge from the bacteriologist, who is endeavouring to learn the life history of microbes, the conditions favourable and prejudicial to their existence, agents which will destroy them or neutralise the poisons which they produce, or some method by which the human organism may be protected against the attacks of these

parasites. The undertaking is not likely to be one of rapid accomplishment.—"To climb steep hills requires slow pace at first."

I wish now to refer, in some detail, to one or two of the infectious diseases, and first I propose to dwell at some length on smallpox and its preventive treatment by vaccination. Let us first take a cursory glance at the history of vaccination. The ravages of smallpox were met in by-gone times by inoculating the healthy with smallpox to produce an attack of the disease which was of a mild character but yet protected the system against future attacks. When and where variolation was first in operation history does not say. There is no doubt that Lady Mary Wortley Montague introduced it into this country in the early part of last century, and that it was extensively carried on here in the latter part of that century and that the practice was continued up to 1840, when Parliament prohibited it. While variolation produced very mild attacks, little disfigurement, a mortality of about only one in five hundred and as much security as an attack of the disease acquired by contagion, yet it obviously increased the number of cases of smallpox by giving it to those who would not otherwise have had it, and these, in their turn, spreading it by contagion.

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Let us pause for a moment to speculate on the working of Jenner's mind at this time. He saw the trivial effects of inoculated smallpox and the security which this variolation afforded against subsequent attacks of smallpox. His ears were open to the common talk in the dairy districts that those milkers who had casually inoculated their fingers with cowpox were

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Unfortunately, at the commencement of his researches, Jenner's mind was hampered by the idea that cowpox in the cow was developed by inoculation with matter from the heels of horses suffering from a disease called the Grease; but he lived to find his theory of the horse-grease origin of cowpox erroneous; and even while holding to the horse-grease origin of cowpox, it is clear, from the Latin appellation he gave to the latter disease (Variolæ Vaccinæ), that it was in his mind that cowpox might be smallpox of the cow.

It would be foreign to my purpose to go into all the attempts that were made to rob Jenner of his laurels, the multitudinous attacks on his system, the numberless experiments which were made, and which seemed to prove conclusively anything and everything both for and against his doctrine; and are they not written in Crookshank on Vaccination? It was said that he was not the first to inoculate man with cowpox; and perhaps he was not. There is historic evidence that a farmer, named Benjamin Jesty, as early as 1774, performed the operation on his wife and two sons as a protection against smallpox; but to Jenner is

undoubtedly due the credit of introducing vaccination to the public and getting their assent to its practice. He first used humanised cowpox lymph, and kept up the supply by arm-to-arm vaccination; and but for an arm-to-arm vaccination, vaccination must have collapsed, inasmuch as cowpox is a very rare disease—so rare that, although I have been in touch with some dairy districts for over twenty years, I have never had an opportunity of seeing a case.

I must not omit mention of the action of our Association in the matter. It appointed a committee to consider the question and to examine the evidence; Barron, the biographer of Jenner, was chairman; and its report, which appeared in 1839, set forth that cowpox in man secured him from subsequent attacks of smallpox; it affirmed the identity of the two diseases; it pointed out that while horse-grease did not produce cowpox, there was a disease of horses called horsepox which afforded the same protection as cowpox; it supported vaccination by statistics.

There were failures in vaccinal protection in Jenner's time; he met them by ascribing them to the use of lymph from spurious cowpox, the lymph of which was not protective. In the year 1845 Doctor Badcock, of Brighton, had smallpox himself three months after vaccination, and he found failures in others. He concluded that the lymph in use was getting worn out; he raised a new stock by variolating a cow, and this lymph was extensively used.

In 1853 Marson, of the London Smallpox Hospital, explained failures by the insufficient application of the lymph, and said that security might be measured by the number of cicatrices. He found that while the mortality of those with one scar was 7½ per cent., that of those with four scars was less than 1 per cent.

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For diphtheria and enteric fever no vaccines have as yet been found. But bacteriologists now profess to be able to determine the presence of these diseases by examination of secretions before the clinical symptoms warrant a diagnosis; and in the case of tuberculosis, though no preventive or curative vaccine has been discovered, the help which bacteriologists give us in diagnosing this disease is of signal service. Let me cite two cases.

A very healthy-looking girl, at the end of a smart attack of measles, suddenly developed a cough and slight expectoration; crepitation was heard over the whole chest. The diagnosis seemed to lie between bronchitis and catarrhal pneumonia. Dr. Russell, my colleague, then House Physician, reported that the sputum contained tubercle bacilli. She died a year subsequently of tubercular phthisis.

Again, in a case where the symptoms pointed equally to enteric fever and pulmonary tuberculosis, and the treatment and prognosis depended upon the diagnosis, the negative result of the examination of the sputum correctly shewed the case to be one of enteric fever.

Pyæmia, at one time a frequent cause of death in our surgical ward, is now a rarity. How far this change is due to the use of germicides and how far it is the result of extra cleanliness—which prevents putrescible matter, the cultivating medium for germs, from accumulating in wounds—is a question upon which I shall not now enter; but all will admit that the recognition of the germ origin of this disease has brought about the diminution and almost complete extinction of this incurable complication of operation cases.

I would not have you infer from what I have said that I believe any of the vaccination processes for the prevention, mitigation, or cure of any of the infectious diseases, from vaccination against smallpox to anti-choleraic vaccination, are at present perfected. I do not think they are. The ways of microbes are dark but not past finding out; and the apparent failure of any one method of dealing with a particular infectious disease by a vaccine, through imperfection of detail, must not shake our confidence in bacteriological science generally.

I am free to admit that we are far from home in this matter, but I believe the road is right, and if ever we are to have a definite treatment for the infectious diseases it will be in the direction of vaccines, germicides, or antitoxins, and in respect to these we must look for light from the laboratory.

In the meantime it behoves us to study the modes of dissemination of the germs of infectious diseases and their entrance doors into the body in order that by isolation, disinfection, and other sanitary measures we may prevent and limit outbreaks. There are two diseases, diphtheria and scarlet fever, which, in spite of all our sanitary reforms, are ever rampant in our midst.

Investigation into the distribution of some outbreaks of these diseases have tracked them both to the cow, and the milkman and the pump have both been blamed; but of late, a suspicion has been raised that the milk has been infected before it left the cow, and in some instances suspected milk has been traced to sick cows. This, however, is a problem for the future.

With regard to the ingress of germs into the body, it seems reasonable to think that in some kinds of infectious disease local manifestations mark the spot where the microbes creep into the system. This is undoubtedly the case in inoculated smallpox, vaccinia, syphilis, and erysipelas; and do not the bowel symptoms in cholera and enteric fever, the throat symptoms in diphtheria and scarlet fever, and the conjunctival and nasal symptoms in measles lead us to suspect where, in these cases, the microbes effect an entrance into the system.

It becomes more and more evident, day by day, that there is an unseen world around us, populated by parasites, many of which our present microscopes, with their highest powers, do not enable us to discern. To those who only believe in the existence of objects which they can behold with the unaided eye, such a suggestion might savour of the fantastic and incredible; to them the association of life with the infinitely small and invisible might appear unworthy of credence, but when the difference in size among living organisms in the seen world is contemplated—when the Elephant is compared with the Acarus, the marvel of the gap between the Acarus and the smallest bacterial germ disappears. We are frequently, especially in our large towns, exposed to specific disease-producing germs which are ever ready to make our bodies their home, and yet when so exposed we may escape unarmed, and how do we thus escape? The generally-accepted law, that two factors are necessary for the development of an infectious disease, namely, a specific germ and a suitable soil, is both probable and comforting; and this law applies throughout creation. We know that a hen comes only from a hen's egg; we know also that the egg, to be hatched, must be placed under favourable conditions. There are in this city at the present moment any number of hen's eggs which will never develop into chickens; some for want of favourable conditions only, some—not a few—from having lost their vitality from long keeping. There is reason to think that the human system in a

afterwards and thereby proof against smallpox. He saw that cowpox in man produced a more trifling ailment than inoculated smallpox, no danger to life, no spread by contagion.

It is not surprising that his synthetical mind should have suggested, why not inoculate with cowpox lymph instead of variolus lymph. In 1798 Jenner goes into print with the title of "Enquiries into the Causes and Effects of the Variola Vaccina, a disease discovered in some of the Western Counties of England, particularly Gloucestershire, and known by the name of the Cowpox." In this publication he gives an account of his first vaccination, and states how that he lost his stock of lymph and was therefore prevented from repeating his experiment until March, 1798, when he inoculated a boy with cowpox lymph straight from a pock on the teat of a cow. The inoculation succeeded, and from vesicles on this boy he inoculated others, and from them others, and for aught I know you and I have been vaccinated from the same stock of lymph.

Unfortunately, at the commencement of his researches, Jenner's mind was hampered by the idea that cowpox in the cow was developed by inoculation with matter from the heels of horses suffering from a disease called the Grease; but he lived to find his theory of the horse-grease origin of cowpox erroneous; and even while holding to the horse-grease origin of cowpox, it is clear, from the Latin appellation he gave to the latter disease (Variolæ Vaccinæ), that it was in his mind that cowpox might be smallpox of the cow.

It would be foreign to my purpose to go into all the attempts that were made to rob Jenner of his laurels, the multitudinous attacks on his system, the numberless experiments which were made, and which seemed to prove conclusively anything and everything both for and against his doctrine; and are they not written in Crookshank on Vaccination? It was said that he was not the first to inoculate man with cowpox; and perhaps he was not. There is historic evidence that a farmer, named Benjamin Jesty, as early as 1774, performed the operation on his wife and two sons as a protection against smallpox; but to Jenner is

undoubtedly due the credit of introducing vaccination to the public and getting their assent to its practice. He first used humanised cowpox lymph, and kept up the supply by arm-to-arm vaccination; and but for an arm-to-arm vaccination, vaccination must have collapsed, inasmuch as cowpox is a very rare disease—so rare that, although I have been in touch with some dairy districts for over twenty years, I have never had an opportunity of seeing a case.

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PUBLISHER'S DEPARTMENT.

New Books, etc., Received.

A Practical Treatise on Materia Medica and Therapeutics, with special reference to the Clinical Application of Drugs. By JOHN V. SHOEMAKER, A.M., M.D. In two volumes. Second edition. Philadelphia and London : The F. A. Davis Company. 1893.

Selected Monographs on Dermatology. Translated for and published by the New Sydenham Society 1893.

Lectures on Sanitary Law. By A. WYNTER BLYTH, M.R.C.S., L.S.A., Barrister-at-Law. London : Macmillan and Co. 1893.

Domestic Medicine and Hygiene. By WILLIAM J RUSSELL, M.B. Third edition. London : W. H. Everett and Son.

Hospital Sisters and their Duties. By E. C. E. Lückes. Matron to the London Hospital. Third edition. London : The Scientific Press Limited. 1893.

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ORIGINAL COMMUNICATIONS.

REMARKS ON INFECTIOUS DISEASES WITH ESPECIAL REFERENCE TO THEIR TREATMENT BY VACCINES.*

BY EDWIN RICKARDS, M.B., F.R.C.P.

Gentlemen,

The choice of a subject for to-day's Inaugural Address caused me some anxiety, and the desire to say something which might stimulate useful thought, led me to ask your indulgence for making a somewhat new departure in addressing you at this our Annual Meeting on a strictly medical subject. The title of my address is, Remarks on Infectious Diseases with especial reference to their Treatment by Vaccines.

I feel I ought to preface my remarks by giving an answer to a question which naturally suggests itself to all present—What is an Infectious Disease? The framing of a definition is always difficult, and it is especially so in this case, seeing that the class of infectious diseases is already an extensive one and its borders are being daily enlarged, so that a concise yet comprehensive definition which would answer for many members of the class would not fit all. With our present knowledge I think I am justified in defining an infectious disease as a disease caused by the presence in the body of a Pathogenic Micro-organism from without, having an incubative period and capable of being communicated (by some method) from one individual to another. There are other features which characterise most members of the class, but not all: such as Fever, limited duration, protection of the system from a future attack of the same disease.

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* Presidential Address at the Annual Meeting of the Birmingham and Midland Counties Branch of the British Medical Association.

You no doubt, gentlemen, have been impressed, as I have been, with our powerlessness to deal with Diseases of Degeneration and Malignant Neoplasms, and also by the poorness of the prospect of our gaining ground in this direction. Tissue decay is not under our control nor likely to be, and although we may sometimes be able to influence the pace of its progress, the bursting of a rotten vessel may be postponed by precaution, and life may be prolonged in spite of sclerosed organs, yet the lesion remains and a cure is hopeless. In diseases of degeneration, however, individuals are solely concerned, and for them they are chiefly responsible; some, by their struggle to be front in the battle of life, court these changes, which land them in a premature grave; some drink themselves into the family vault. For premature decay parentage is sometimes culpable; short-lived parents tend to produce short-lived children, and as we inherit physiological and anatomical peculiarities, so we have to accept pathological tendencies. Deaths from degenerative disease induced by special industries are preventable and lie at the door of our legislature. With regard to malignant neoplasms, they can neither be prevented nor cured, if knifed away their speedy return is certain.

But infectious diseases, on the other hand, speaking generally, concern not only those attacked, but those around—the whole community, *tua res agitur paries si proximus ardet.* Hitherto, with regard to them, our energies have been spent almost entirely on prevention; and, with all our improvements in practical sanitation, outbreaks continue to manifest themselves, though these are looked upon as a reflection on the authorities of the district where they occur. Our curative treatment of these diseases has been essentially expectant; we have stood at the bedside only as nurses to nature, making domestic condition favourable, trying to relieve symptoms and combat complications, knowing that the tendency in most of the infectious disorders is for the disease to terminate spontaneously, and feeling assured that if we can keep our patients alive for a limited but varying period of time, their recovery will be complete. There appears now promise that we are on the eve of a great medical era, when we shall no longer be satisfied with lessening our losses from infectious diseases by preventive measures, and look on while these diseases run their uninterrupted course to recovery or death, but shall have curative methods at our command.

From time immemorial it has been thought that in the spread of infectious diseases a something was transferred from one person to another directly or indirectly, but the nature of that something and the mode of its transferrence were mysteries. It is true that there ever have been and still are a few advocates of the occasional *de novo* origin of infective viruses, whose one argument has been sporadic cases where communication between the affected and previous cases has not been apparent; but when we consider the durability of viruses and the abundant vehicles which may transport them—man, animals, clothing, merchandise, air, water—the bottom seems knocked out of that argument.

Centuries ago there was a suspicion that some infectious diseases were caused by micro-organisms, and when, in the middle of this century, it became known that fermentation was the result of the action of a living organism, the term zymotic was imported into our medical nomenclature, to designate endemic, epidemic, and contagious diseases.

Now the germ origin of infectious disorders is fairly established, bacteriologists are beginning to particularise the various micro-organisms which give rise to the different diseases, to call them all by their names, to figure them, to colour them by stains, to differentiate them by culture, to attenuate and intensify their activity, and to separate their poisonous secretions.

But apart from the demonstration of microbes in infectious

diseases by the microscope and by cultures, we are forced to the conclusion that these diseases are caused by living organisms by the fact that in every infectious disease a developmental period is essential; and the duration of that period in each case is becoming known. We know that if a person, a week after exposure to the contagium of smallpox, shews smallpox pustules, the smallpox is not the result of the exposure a week previously, because the week could not have sufficed for the incubation of the disease and the development of the pustules. This incubative period can, to my mind, only be explained by the growth or multiplication of a living organism. All lifeless poisons, as strychnine and arsenic, require no time for incubation, but shew their effect at once; their symptoms are synchronous with absorption. The fixed period of the incubative stage and the duration of illness, which varies within narrow limits in most of the infectious diseases, seem to argue in favour of their microbic origin. These features lend colour to the conception of the growth and death of a living organism, its death being the result of a poison secreted by itself, or of starvation of the parasite from its having completely consumed some constituent of the body upon which it feeds. This latter view would go to explain the phenomenon of immunity, which is difficult to explain on other grounds. The immunity afforded by an attack of an infectious disease against a future attack of the same disease is, to my mind, further evidence of its microbic origin; for we know of no inanimate poison which will afford such immunity against its own future action.

The study of bacteriology is a gigantic undertaking and quite outside individual enterprise: the necessary appliances, the character of the experiments, the nature of the observations make it a specialism. We are now anxiously waiting for knowledge from the bacteriologist, who is endeavouring to learn the life history of microbes, the conditions favourable and prejudicial to their existence, agents which will destroy them or neutralise the poisons which they produce, or some method by which the human organism may be protected against the attacks of these

parasites. The undertaking is not likely to be one of rapid accomplishment.—"To climb steep hills requires slow pace at first."

I wish now to refer, in some detail, to one or two of the infectious diseases, and first I propose to dwell at some length on smallpox and its preventive treatment by vaccination. Let us first take a cursory glance at the history of vaccination. The ravages of smallpox were met in by-gone times by inoculating the healthy with smallpox to produce an attack of the disease which was of a mild character but yet protected the system against future attacks. When and where variolation was first in operation history does not say. There is no doubt that Lady Mary Wortley Montague introduced it into this country in the early part of last century, and that it was extensively carried on here in the latter part of that century and that the practice was continued up to 1840, when Parliament prohibited it. While variolation produced very mild attacks, little disfigurement, a mortality of about only one in five hundred and as much security as an attack of the disease acquired by contagion, yet it obviously increased the number of cases of smallpox by giving it to those who would not otherwise have had it, and these, in their turn, spreading it by contagion.

In 1796 Jenner performed his first vaccination. He found on the hands of a milkmaid, in Gloucestershire, vesicles contracted accidentally by milking a cowpoxed cow. With lymph from these vesicles he inoculated a boy and produced vaccine vesicles; this boy, some six weeks afterwards, he inoculated with smallpox without result, and thereby satisfied himself that cowpox inoculation, or vaccination, had rendered this boy insusceptible of smallpox.

Let us pause for a moment to speculate on the working of Jenner's mind at this time. He saw the trivial effects of inoculated smallpox and the security which this variolation afforded against subsequent attacks of smallpox. His ears were open to the common talk in the dairy districts that those milkers who had casually inoculated their fingers with cowpox were

afterwards and thereby proof against smallpox. He saw that cowpox in man produced a more trifling ailment than inoculated smallpox, no danger to life, no spread by contagion.

It is not surprising that his synthetical mind should have suggested, why not inoculate with cowpox lymph instead of variolus lymph. In 1798 Jenner goes into print with the title of "Enquiries into the Causes and Effects of the Variola Vaccina, a disease discovered in some of the Western Counties of England, particularly Gloucestershire, and known by the name of the Cowpox." In this publication he gives an account of his first vaccination, and states how that he lost his stock of lymph and was therefore prevented from repeating his experiment until March, 1798, when he inoculated a boy with cowpox lymph straight from a pock on the teat of a cow. The inoculation succeeded, and from vesicles on this boy he inoculated others, and from them others, and for aught I know you and I have been vaccinated from the same stock of lymph.

Unfortunately, at the commencement of his researches, Jenner's mind was hampered by the idea that cowpox in the cow was developed by inoculation with matter from the heels of horses suffering from a disease called the Grease; but he lived to find his theory of the horse-grease origin of cowpox erroneous; and even while holding to the horse-grease origin of cowpox, it is clear, from the Latin appellation he gave to the latter disease (Variolæ Vaccinæ), that it was in his mind that cowpox might be smallpox of the cow.

It would be foreign to my purpose to go into all the attempts that were made to rob Jenner of his laurels, the multitudinous attacks on his system, the numberless experiments which were made, and which seemed to prove conclusively anything and everything both for and against his doctrine; and are they not written in Crookshank on Vaccination? It was said that he was not the first to inoculate man with cowpox; and perhaps he was not. There is historic evidence that a farmer, named Benjamin Jesty, as early as 1774, performed the operation on his wife and two sons as a protection against smallpox; but to Jenner is

undoubtedly due the credit of introducing vaccination to the public and getting their assent to its practice. He first used humanised cowpox lymph, and kept up the supply by arm-to-arm vaccination; and but for an arm-to-arm vaccination, vaccination must have collapsed, inasmuch as cowpox is a very rare disease—so rare that, although I have been in touch with some dairy districts for over twenty years, I have never had an opportunity of seeing a case.

I must not omit mention of the action of our Association in the matter. It appointed a committee to consider the question and to examine the evidence; Barron, the biographer of Jenner, was chairman; and its report, which appeared in 1839, set forth that cowpox in man secured him from subsequent attacks of smallpox; it affirmed the identity of the two diseases; it pointed out that while horse-grease did not produce cowpox, there was a disease of horses called horsepox which afforded the same protection as cowpox; it supported vaccination by statistics.

There were failures in vaccinal protection in Jenner's time; he met them by ascribing them to the use of lymph from spurious cowpox, the lymph of which was not protective. In the year 1845 Doctor Badcock, of Brighton, had smallpox himself three months after vaccination, and he found failures in others. He concluded that the lymph in use was getting worn out; he raised a new stock by variolating a cow, and this lymph was extensively used.

In 1853 Marson, of the London Smallpox Hospital, explained failures by the insufficient application of the lymph, and said that security might be measured by the number of cicatrices. He found that while the mortality of those with one scar was 7½ per cent., that of those with four scars was less than 1 per cent.

What, I would ask, is our position now in regard to vaccination? Maybe some of the profession are satisfied to practise on authority and are pleased to be spared the time and trouble of thinking; the bulk of us, however, desire to have a reason for

the faith that is in us. The consideration of the question in its scientific aspect involves reliance on observations made a long time ago, when criticism, though violent, was not so severe as now; one such observation showing that human smallpox may be transferred to the cow by contagion, by exposing the animal to clothing from a smallpox patient, and many others which have at one time had credit, are now not generally accepted. Before an opinion can be formed from the scientific aspect of the subject many experiments would have to be repeated, many questions would have to be thought out. For instance: Is our present vaccinia cultivated cowpox? that is to say, is the lymph now in use humanised cowpox lymph or cowpox lymph, the stock of which has been kept up by heifer inoculation? Is cowpox a disease arising spontaneously in the cow. Is cowpox in the cow the same disease as smallpox in man? Is cowpox inoculated human smallpox?

It is said by some that cowpox is a local disease and non-contagious, that smallpox is a general disease and contagious, and that, therefore, the two diseases cannot be the same; but we have learnt of late years how disease may be modified by cultivation, and history tells us of the great difference between inoculated smallpox and natural smallpox; moreover, we know of no disease in man which protects him from a different disease or even modifies an attack of a different disease; and a strong argument to my mind that cowpox is inoculated human smallpox is the recorded fact that stocks of lymph raised by variolating the cow have been extensively used for vaccination and have produced vaccinia to all appearances the same as that from cowpox lymph and bestowing the same protective influence.

The view that cowpox in the cow is inoculated smallpox explains the rarity of cowpox at the present time, inasmuch as persons do not now, as formerly, follow their occupations while suffering from smallpox; and, should this view prove to be correct, the value of Jenner's discovery would be much enhanced from a scientific standpoint.

In weighing the claims of vaccination my mind has been

largely influenced by Jenner's experiments, by statistics, especially recent ones, and by my own limited observations. Jenner vaccinated and then tried in vain to variolate. It would be well if we were permitted to repeat his experiments and so settle the question, but the law forbids. There are some startling statistics in Dr. Barry's report of the smallpox epidemic at Sheffield, 1887–88. From his report of that epidemic, it appears that of the vaccinated inhabitants of Sheffield 1½ per cent. were attacked with smallpox, of the unvaccinated about 10 per cent.; that of those attacked the mortality of the vaccinated was about 5 per cent., of the unvaccinated about 50 per cent.; that of children under five years of age attacked not one per cent. of the vaccinated died, whereas of the unvaccinated over 50 per cent. died; all the employees in the Post Office, 290 in number, who had all been re-vaccinated on entering the service, escaped the disease. The report of the Royal Commission on Vaccination, 1890, shows that of the children under ten years of age admitted into the Hampstead Hospital with smallpox, 1876-7-8, the mortality of the vaccinated was about 3 per cent., of the unvaccinated about 50 per cent. Statistics of children carry great weight, because the evidence of vaccination and non-vaccination is more recent and reliable, and because the protective influence of the operation has not worn off. In the House of Commons, in May last, Sir Walter Foster stated that, at Leicester, twenty-two of the attendants on smallpox patients were either re-vaccinated or protected by having had smallpox and not one of them had been attacked; six refused to be re-vaccinated, and of these four had been attacked and one had died.

A telling circumstance is within my knowledge and is borne out by registers now extant :—A village in Leicestershire, well known to me, with 1,300 inhabitants, was visited by smallpox in 1872. In this village, at that time, all but two persons were vaccinated, and of the 1,300 two only died of the epidemic, and these two were the two unvaccinated persons, one 30 and the other 32 years of age. I was much impressed with a case

which came under my observation the same year. A servant at an hotel nursed a sick visitor when it was manifest that the illness was smallpox, she was re-vaccinated, she had smallpox but in a most mild form—the two diseases were present at the same time and seemed to modify each other.

On the other hand, I have seen the vaccinated have smallpox, be disfigured by it, and die. The four worst cases of disfigurement I have seen have been in the vaccinated; but in all these cases there had been only infantile vaccination, and all were between 19 and 25 years of age when attacked. My belief is that vaccination efficiently performed, with good lymph, diminishes susceptibility to smallpox; that the effects of infantile vaccination are worn out at puberty; that vaccination, for a limited but at present unknown period of time, modifies an attack of smallpox, and reduces the death-rate of those attacked. At the same time I fully sympathise with those who ask for a re-examination of the whole question, a repetition of the old experiments, and a searching investigation of every epidemic, by men with open minds and by men from both sides of the question; for vaccination now stands on statistics. If the principle of vaccination is sound, our practice of it is far from perfect; statistics the most favourable to vaccination give the enemies of vaccination an occasion to cry out. If there is anything in vaccination, there is in it not only protection against smallpox, but a vital principle probably capable of extension to other infectious diseases. If Jenner was right, we are wrong. Hear the words of Jenner.

Jenner, after apologising for those sceptical of his discovery on its first announcement, writes:—"But now, when that scrutiny has taken place not only among ourselves, but in the first professional circles in Europe, and when it has been uniformly found in such abundant instances that the human frame, when once it has felt the influence of genuine cowpox in the way that has been described, is never afterwards at any period of its existence assailable by the smallpox, may I not with perfect confidence congratulate my country and society at large on their

beholding, in the mild form of the cowpox, an antidote that is capable of extirpating from the earth a disease which is every hour devouring its victims—a disease that has ever been considered as the severest scourge to the human race?"

It would be idle to pretend that our present statistics, while pronouncing in favour of vaccination, satisfy Jenner's requirements, and this being so we naturally question the mode of operation and the virtue of the lymph now in use. I believe the experience of Marson as to the number of cicatrices desirable is officially ignored, and that one scar meets the demand of the legislature. There is a growing belief in the necessity for re-vaccination, and Dr. Corfield, in an address delivered at University College, London, charges modern outbreaks of smallpox in this country to our neglect of it. As to the source of the lymph now in use I know nothing beyond the fact that some is imported from foreign countries, some comes from this, some from that, chemist.

Let us turn now to Cholera, the most fatal of our epidemic diseases, slaying, as it does at some periods of some epidemics, one half of those attacked. It is always imported into this country. Cases have been reported as having originated here; but in spite of well-marked symptoms unless a supposed case can be traced to a previous case, or can be shewn to propagate the disease, the diagnosis of cholera must always be viewed with suspicion. Cholera leaving its home in India, dogs the steps of man in its march to other countries, and I cannot but think myself that its germs are conveyed from country to country, from district to district, principally inside man. I do not mean to say that fresh articles of food and recently worn apparel may not convey the germs from place to place, but I doubt if these are often the chariots of cholera germs from locality to locality. How the cholera bacilli find their way from individual to individual is yet a mystery, though there is probably truth in Mr. Ernest Hart's trite saying, that "we eat and drink them." Filthy conditions and moisture seem however essential to their interim existence. The bacilli having effected an entrance into

the human body, lodge, increase and multiply in the alimentary canal; the alvine secretions from a cholera patient contain these bacilli in profusion and act as a temporary depot until they in their turn are scattered abroad to the spread of the disease. Medical inspection of incoming ships and isolation are our principal preventive methods against the invasion and dissemination of cholera, for it has been found that even such a system of quarantine as would seriously damage the trade of our country would be of no avail in preventing an invasion of cholera; and but for the energetic action of our Local Government Board, and Port Sanitary Medical Officers in inspecting vessels from infected districts, and in isolating a few suspicious cases, we should doubtless have been visited by a cholera epidemic last year. For cholera we have had no specific treatment, nor can we do much in the way of supporting our patient, seeing that the vomiting and purging prevent us supplying nourishment to the system; we naturally turn to the bacteriologists. M. Haffkine has prepared from cholera-bacillus-cultivations vaccines which in animals enable the system to tolerate cholera artificially induced in them; he has proved also that these vaccines are innocucus in man, and now it remains to be proved whether they are protective in man as in animals, and if so, for how long the protection lasts.

And now a word on hydrophobia, the king of terrors in diseases—cruel in its manifestations, horrible in its death—for the cure or mitigation of which no drugs avail. It is, according to my definition, an infectious disease, though the infection is conveyed, as far as we know, only by inoculation. There is, to my mind, no room for doubt as to its being microbic in its nature; and while the specific microbes have not as yet been isolated, it is clear that they are the same as those which cause rabies in dogs. The inoculation with rabies-virus produces rabies in animals, and no doubt hydrophobia in man. Pasteur professes to have succeeded in preparing a vaccine of rabies-virus which, while not producing symptoms of hydrophobia in man, when applied soon after the bite of mad dog, prevents the

subsequent development of hydrophobic symptoms. The value of this method of treatment will have to be decided by statistics, which so far are encouraging. At the Pasteur Institute the mortality among persons bitten by animals known to be rabid and submitted to this treatment is said now to be less than 1 per cent.

Somewhat akin to hydrophobia is tetanus, for which all the drugs in the pharmacopœia have in vain been tried. Here a distinctive bacillus has been found, and animals inoculated with the cultures of the bacillus have developed tetanus. At the same time, by gradual vaccination with these cultures animals may be made proof against the disease.

Tizzoni and Cattani profess to have obtained from the blood of dogs thus rendered immune against tetanus a substance called by them tetanus antitoxin, which is said to have cured animals and men affected by the disease after its symptoms have shewn themselves.

For diphtheria and enteric fever no vaccines have as yet been found. But bacteriologists now profess to be able to determine the presence of these diseases by examination of secretions before the clinical symptoms warrant a diagnosis; and in the case of tuberculosis, though no preventive or curative vaccine has been discovered, the help which bacteriologists give us in diagnosing this disease is of signal service. Let me cite two cases.

A very healthy-looking girl, at the end of a smart attack of measles, suddenly developed a cough and slight expectoration; crepitation was heard over the whole chest. The diagnosis seemed to lie between bronchitis and catarrhal pneumonia. Dr. Russell, my colleague, then House Physician, reported that the sputum contained tubercle bacilli. She died a year subsequently of tubercular phthisis.

Again, in a case where the symptoms pointed equally to enteric fever and pulmonary tuberculosis, and the treatment and prognosis depended upon the diagnosis, the negative result of the examination of the sputum correctly shewed the case to be one of enteric fever.

Pyæmia, at one time a frequent cause of death in our surgical ward, is now a rarity. How far this change is due to the use of germicides and how far it is the result of extra cleanliness—which prevents putrescible matter, the cultivating medium for germs, from accumulating in wounds—is a question upon which I shall not now enter; but all will admit that the recognition of the germ origin of this disease has brought about the diminution and almost complete extinction of this incurable complication of operation cases.

I would not have you infer from what I have said that I believe any of the vaccination processes for the prevention, mitigation, or cure of any of the infectious diseases, from vaccination against smallpox to anti-choleraic vaccination, are at present perfected. I do not think they are. The ways of microbes are dark but not past finding out; and the apparent failure of any one method of dealing with a particular infectious disease by a vaccine, through imperfection of detail, must not shake our confidence in bacteriological science generally.

I am free to admit that we are far from home in this matter, but I believe the road is right, and if ever we are to have a definite treatment for the infectious diseases it will be in the direction of vaccines, germicides, or antitoxins, and in respect to these we must look for light from the laboratory.

In the meantime it behoves us to study the modes of dissemination of the germs of infectious diseases and their entrance doors into the body in order that by isolation, disinfection, and other sanitary measures we may prevent and limit outbreaks. There are two diseases, diphtheria and scarlet fever, which, in spite of all our sanitary reforms, are ever rampant in our midst.

Investigation into the distribution of some outbreaks of these diseases have tracked them both to the cow, and the milkman and the pump have both been blamed; but of late a suspicion has been raised that the milk has been infected before it left the cow, and in some instances suspected milk has been traced to sick cows. This, however, is a problem for the future.

With regard to the ingress of germs into the body, it seems reasonable to think that in some kinds of infectious disease local manifestations mark the spot where the microbes creep into the system. This is undoubtedly the case in inoculated smallpox, vaccinia, syphilis, and erysipelas; and do not the bowel symptoms in cholera and enteric fever, the throat symptoms in diphtheria and scarlet fever, and the conjunctival and nasal symptoms in measles lead us to suspect where, in these cases, the microbes effect an entrance into the system.

It becomes more and more evident, day by day, that there is an unseen world around us, populated by parasites, many of which our present microscopes, with their highest powers, do not enable us to discern. To those who only believe in the existence of objects which they can behold with the unaided eye, such a suggestion might savour of the fantastic and incredible; to them the association of life with the infinitely small and invisible might appear unworthy of credence, but when the difference in size among living organisms in the seen world is contemplated—when the Elephant is compared with the Acarus, the marvel of the gap between the Acarus and the smallest bacterial germ disappears. We are frequently, especially in our large towns, exposed to specific disease-producing germs which are ever ready to make our bodies their home, and yet when so exposed we may escape unarmed, and how do we thus escape? The generally-accepted law, that two factors are necessary for the development of an infectious disease, namely, a specific germ and a suitable soil, is both probable and comforting; and this law applies throughout creation. We know that a hen comes only from a hen's egg; we know also that the egg, to be hatched, must be placed under favourable conditions. There are in this city at the present moment any number of hen's eggs which will never develop into chickens; some for want of favourable conditions only, some—not a few—from having lost their vitality from long keeping. There is reason to think that the human system in a

afterwards and thereby proof against smallpox. He saw that cowpox in man produced a more trifling ailment than inoculated smallpox, no danger to life, no spread by contagion.

It is not surprising that his synthetical mind should have suggested, why not inoculate with cowpox lymph instead of variolus lymph. In 1798 Jenner goes into print with the title of "Enquiries into the Causes and Effects of the Variola Vaccina, a disease discovered in some of the Western Counties of England, particularly Gloucestershire, and known by the name of the Cowpox." In this publication he gives an account of his first vaccination, and states how that he lost his stock of lymph and was therefore prevented from repeating his experiment until March, 1798, when he inoculated a boy with cowpox lymph straight from a pock on the teat of a cow. The inoculation succeeded, and from vesicles on this boy he inoculated others, and from them others, and for aught I know you and I have been vaccinated from the same stock of lymph.

Unfortunately, at the commencement of his researches, Jenner's mind was hampered by the idea that cowpox in the cow was developed by inoculation with matter from the heels of horses suffering from a disease called the Grease; but he lived to find his theory of the horse-grease origin of cowpox erroneous; and even while holding to the horse-grease origin of cowpox, it is clear, from the Latin appellation he gave to the latter disease (Variolæ Vaccinæ), that it was in his mind that cowpox might be smallpox of the cow.

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The view that cowpox in the cow is inoculated smallpox explains the rarity of cowpox at the present time, inasmuch as persons do not now, as formerly, follow their occupations while suffering from smallpox; and, should this view prove to be correct, the value of Jenner's discovery would be much enhanced from a scientific standpoint.

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largely influenced by Jenner's experiments, by statistics, especially recent ones, and by my own limited observations. Jenner vaccinated and then tried in vain to variolate. It would be well if we were permitted to repeat his experiments and so settle the question, but the law forbids. There are some startling statistics in Dr. Barry's report of the smallpox epidemic at Sheffield, 1887–88. From his report of that epidemic, it appears that of the vaccinated inhabitants of Sheffield 1½ per cent. were attacked with smallpox, of the unvaccinated about 10 per cent.; that of those attacked the mortality of the vaccinated was about 5 per cent., of the unvaccinated about 50 per cent.; that of children under five years of age attacked not one per cent. of the vaccinated died, whereas of the unvaccinated over 50 per cent. died; all the employees in the Post Office, 290 in number, who had all been re-vaccinated on entering the service, escaped the disease. The report of the Royal Commission on Vaccination, 1890, shows that of the children under ten years of age admitted into the Hampstead Hospital with smallpox, 1876-7-8, the mortality of the vaccinated was about 3 per cent., of the unvaccinated about 50 per cent. Statistics of children carry great weight, because the evidence of vaccination and non-vaccination is more recent and reliable, and because the protective influence of the operation has not worn off. In the House of Commons, in May last, Sir Walter Foster stated that, at Leicester, twenty-two of the attendants on smallpox patients were either re-vaccinated or protected by having had smallpox and not one of them had been attacked; six refused to be re-vaccinated, and of these four had been attacked and one had died.

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diseases by the microscope and by cultures, we are forced to the conclusion that these diseases are caused by living organisms by the fact that in every infectious disease a developmental period is essential; and the duration of that period in each case is becoming known. We know that if a person, a week after exposure to the contagium of smallpox, shews smallpox pustules, the smallpox is not the result of the exposure a week previously, because the week could not have sufficed for the incubation of the disease and the development of the pustules. This incubative period can, to my mind, only be explained by the growth or multiplication of a living organism. All lifeless poisons, as strychnine and arsenic, require no time for incubation, but shew their effect at once; their symptoms are synchronous with absorption. The fixed period of the incubative stage and the duration of illness, which varies within narrow limits in most of the infectious diseases, seem to argue in favour of their microbic origin. These features lend colour to the conception of the growth and death of a living organism, its death being the result of a poison secreted by itself, or of starvation of the parasite from its having completely consumed some constituent of the body upon which it feeds. This latter view would go to explain the phenomenon of immunity, which is difficult to explain on other grounds. The immunity afforded by an attack of an infectious disease against a future attack of the same disease is, to my mind, further evidence of its microbic origin; for we know of no inanimate poison which will afford such immunity against its own future action.

The study of bacteriology is a gigantic undertaking and quite outside individual enterprise: the necessary appliances, the character of the experiments, the nature of the observations make it a specialism. We are now anxiously waiting for knowledge from the bacteriologist, who is endeavouring to learn the life history of microbes, the conditions favourable and prejudicial to their existence, agents which will destroy them or neutralise the poisons which they produce, or some method by which the human organism may be protected against the attacks of these

parasites. The undertaking is not likely to be one of rapid accomplishment.—"To climb steep hills requires slow pace at first."

I wish now to refer, in some detail, to one or two of the infectious diseases, and first I propose to dwell at some length on smallpox and its preventive treatment by vaccination. Let us first take a cursory glance at the history of vaccination. The ravages of smallpox were met in by-gone times by inoculating the healthy with smallpox to produce an attack of the disease which was of a mild character but yet protected the system against future attacks. When and where variolation was first in operation history does not say. There is no doubt that Lady Mary Wortley Montague introduced it into this country in the early part of last century, and that it was extensively carried on here in the latter part of that century and that the practice was continued up to 1840, when Parliament prohibited it. While variolation produced very mild attacks, little disfigurement, a mortality of about only one in five hundred and as much security as an attack of the disease acquired by contagion, yet it obviously increased the number of cases of smallpox by giving it to those who would not otherwise have had it, and these, in their turn, spreading it by contagion.

In 1796 Jenner performed his first vaccination. He found on the hands of a milkmaid, in Gloucestershire, vesicles contracted accidentally by milking a cowpoxed cow. With lymph from these vesicles he inoculated a boy and produced vaccine vesicles; this boy, some six weeks afterwards, he inoculated with smallpox without result, and thereby satisfied himself that cowpox inoculation, or vaccination, had rendered this boy insusceptible of smallpox.

Let us pause for a moment to speculate on the working of Jenner's mind at this time. He saw the trivial effects of inoculated smallpox and the security which this variolation afforded against subsequent attacks of smallpox. His ears were open to the common talk in the dairy districts that those milkers who had casually inoculated their fingers with cowpox were

afterwards and thereby proof against smallpox. He saw that cowpox in man produced a more trifling ailment than inoculated smallpox, no danger to life, no spread by contagion.

It is not surprising that his synthetical mind should have suggested, why not inoculate with cowpox lymph instead of variolus lymph. In 1798 Jenner goes into print with the title of "Enquiries into the Causes and Effects of the Variola Vaccina, a disease discovered in some of the Western Counties of England, particularly Gloucestershire, and known by the name of the Cowpox." In this publication he gives an account of his first vaccination, and states how that he lost his stock of lymph and was therefore prevented from repeating his experiment until March, 1798, when he inoculated a boy with cowpox lymph straight from a pock on the teat of a cow. The inoculation succeeded, and from vesicles on this boy he inoculated others, and from them others, and for aught I know you and I have been vaccinated from the same stock of lymph.

Unfortunately, at the commencement of his researches, Jenner's mind was hampered by the idea that cowpox in the cow was developed by inoculation with matter from the heels of horses suffering from a disease called the Grease; but he lived to find his theory of the horse-grease origin of cowpox erroneous; and even while holding to the horse-grease origin of cowpox, it is clear, from the Latin appellation he gave to the latter disease (Variolæ Vaccinæ), that it was in his mind that cowpox might be smallpox of the cow.

It would be foreign to my purpose to go into all the attempts that were made to rob Jenner of his laurels, the multitudinous attacks on his system, the numberless experiments which were made, and which seemed to prove conclusively anything and everything both for and against his doctrine; and are they not written in Crookshank on Vaccination? It was said that he was not the first to inoculate man with cowpox; and perhaps he was not. There is historic evidence that a farmer, named Benjamin Jesty, as early as 1774, performed the operation on his wife and two sons as a protection against smallpox; but to Jenner is

undoubtedly due the credit of introducing vaccination to the public and getting their assent to its practice. He first used humanised cowpox lymph, and kept up the supply by arm-to-arm vaccination; and but for an arm-to-arm vaccination, vaccination must have collapsed, inasmuch as cowpox is a very rare disease—so rare that, although I have been in touch with some dairy districts for over twenty years, I have never had an opportunity of seeing a case.

I must not omit mention of the action of our Association in the matter. It appointed a committee to consider the question and to examine the evidence; Barron, the biographer of Jenner, was chairman; and its report, which appeared in 1839, set forth that cowpox in man secured him from subsequent attacks of smallpox; it affirmed the identity of the two diseases; it pointed out that while horse-grease did not produce cowpox, there was a disease of horses called horsepox which afforded the same protection as cowpox; it supported vaccination by statistics.

There were failures in vaccinal protection in Jenner's time; he met them by ascribing them to the use of lymph from spurious cowpox, the lymph of which was not protective. In the year 1845 Doctor Badcock, of Brighton, had smallpox himself three months after vaccination, and he found failures in others. He concluded that the lymph in use was getting worn out; he raised a new stock by variolating a cow, and this lymph was extensively used.

In 1853 Marson, of the London Smallpox Hospital, explained failures by the insufficient application of the lymph, and said that security might be measured by the number of cicatrices. He found that while the mortality of those with one scar was 7½ per cent., that of those with four scars was less than 1 per cent.

What, I would ask, is our position now in regard to vaccination? Maybe some of the profession are satisfied to practise on authority and are pleased to be spared the time and trouble of thinking; the bulk of us, however, desire to have a reason for

the faith that is in us. The consideration of the question in its scientific aspect involves reliance on observations made a long time ago, when criticism, though violent, was not so severe as now; one such observation showing that human smallpox may be transferred to the cow by contagion, by exposing the animal to clothing from a smallpox patient, and many others which have at one time had credit, are now not generally accepted. Before an opinion can be formed from the scientific aspect of the subject many experiments would have to be repeated, many questions would have to be thought out. For instance: Is our present vaccinia cultivated cowpox? that is to say, is the lymph now in use humanised cowpox lymph or cowpox lymph, the stock of which has been kept up by heifer inoculation? Is cowpox a disease arising spontaneously in the cow. Is cowpox in the cow the same disease as smallpox in man? Is cowpox inoculated human smallpox?

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Tizzoni and Cattani profess to have obtained from the blood of dogs thus rendered immune against tetanus a substance called by them tetanus antitoxin, which is said to have cured animals and men affected by the disease after its symptoms have shewn themselves.

For diphtheria and enteric fever no vaccines have as yet been found. But bacteriologists now profess to be able to determine the presence of these diseases by examination of secretions before the clinical symptoms warrant a diagnosis; and in the case of tuberculosis, though no preventive or curative vaccine has been discovered, the help which bacteriologists give us in diagnosing this disease is of signal service. Let me cite two cases.

A very healthy-looking girl, at the end of a smart attack of measles, suddenly developed a cough and slight expectoration; crepitation was heard over the whole chest. The diagnosis seemed to lie between bronchitis and catarrhal pneumonia. Dr. Russell, my colleague, then House Physician, reported that the sputum contained tubercle bacilli. She died a year subsequently of tubercular phthisis.

Again, in a case where the symptoms pointed equally to enteric fever and pulmonary tuberculosis, and the treatment and prognosis depended upon the diagnosis, the negative result of the examination of the sputum correctly shewed the case to be one of enteric fever.

Pyæmia, at one time a frequent cause of death in our surgical ward, is now a rarity. How far this change is due to the use of germicides and how far it is the result of extra cleanliness—which prevents putrescible matter, the cultivating medium for germs, from accumulating in wounds—is a question upon which I shall not now enter; but all will admit that the recognition of the germ origin of this disease has brought about the diminution and almost complete extinction of this incurable complication of operation cases.

I would not have you infer from what I have said that I believe any of the vaccination processes for the prevention, mitigation, or cure of any of the infectious diseases, from vaccination against smallpox to anti-choleraic vaccination, are at present perfected. I do not think they are. The ways of microbes are dark but not past finding out; and the apparent failure of any one method of dealing with a particular infectious disease by a vaccine, through imperfection of detail, must not shake our confidence in bacteriological science generally.

I am free to admit that we are far from home in this matter, but I believe the road is right, and if ever we are to have a definite treatment for the infectious diseases it will be in the direction of vaccines, germicides, or antitoxins, and in respect to these we must look for light from the laboratory.

In the meantime it behoves us to study the modes of dissemination of the germs of infectious diseases and their entrance doors into the body in order that by isolation, disinfection, and other sanitary measures we may prevent and limit outbreaks. There are two diseases, diphtheria and scarlet fever, which, in spite of all our sanitary reforms, are ever rampant in our midst.

Investigation into the distribution of some outbreaks of these diseases have tracked them both to the cow, and the milkman and the pump have both been blamed; but of late a suspicion has been raised that the milk has been infected before it left the cow, and in some instances suspected milk has been traced to sick cows. This, however, is a problem for the future.

With regard to the ingress of germs into the body, it seems reasonable to think that in some kinds of infectious disease local manifestations mark the spot where the microbes creep into the system. This is undoubtedly the case in inoculated smallpox, vaccinia, syphilis, and erysipelas; and do not the bowel symptoms in cholera and enteric fever, the throat symptoms in diphtheria and scarlet fever, and the conjunctival and nasal symptoms in measles lead us to suspect where, in these cases, the microbes effect an entrance into the system.

It becomes more and more evident, day by day, that there is an unseen world around us, populated by parasites, many of which our present microscopes, with their highest powers, do not enable us to discern. To those who only believe in the existence of objects which they can behold with the unaided eye, such a suggestion might savour of the fantastic and incredible; to them the association of life with the infinitely small and invisible might appear unworthy of credence, but when the difference in size among living organisms in the seen world is contemplated—when the Elephant is compared with the Acarus, the marvel of the gap between the Acarus and the smallest bacterial germ disappears. We are frequently, especially in our large towns, exposed to specific disease-producing germs which are ever ready to make our bodies their home, and yet when so exposed we may escape unarmed, and how do we thus escape? The generally-accepted law, that two factors are necessary for the development of an infectious disease, namely, a specific germ and a suitable soil, is both probable and comforting; and this law applies throughout creation. We know that a hen comes only from a hen's egg; we know also that the egg, to be hatched, must be placed under favourable conditions. There are in this city at the present moment any number of hen's eggs which will never develop into chickens; some for want of favourable conditions only, some—not a few—from having lost their vitality from long keeping. There is reason to think that the human system in a

state of health and vigour is not open to attack by most of the pathogenic micro-organisms, nor finds breeding-ground for them. On some such an assumption as this was doubtless founded the usual and desirable practice of post-prandial visits to infectious cases, when the tissues of the practitioner are at their best, and best able to resist microbes. It seems probable that it is only when the system is run down, and the vitality of the tissues is lowered, that these become vulnerable; that when the blood is fouled by impure atmosphere, the circulation is slack and the nervous system unstrung; then it is that pathogenic microbes effect an entrance and secure a hold. The bearing of bacteriology on diseases of animals, on commerce, and agriculture is beyond the scope of my undertaking; but I venture to say that the development of bacteriology as a recognised branch of science is every day becoming of more pressing necessity, and calls for state help.

Gentlemen,—At the commencement of my Address I asked your indulgence to the subject I had selected; I now feel that I owe you an apology for the way in which I have dealt with it and the length to which it has run. But if any words of mine should give rein to your thoughts on this subject, my aim will have been gained.

REPORTS OF CASES.

◆

CASE OF PRIMARY CARCINOMA OF LUNG, WITH SECONDARY DEPOSITS IN LIVER, BRAIN, AND SCAPULA.

ROBERT M. SIMON, M.D.
PHYSICIAN TO THE GENERAL HOSPITAL, BIRMINGHAM.

The extraordinary rapidity of the development of the disease—for the patient died within two months of feeling ill for the first time—and the very extensive diffusion of cancer, make it desirable to publish the case. For the very exhaustive and careful pathological report I am indebted to Dr. Stanley, Pathologist to the General Hospital; and the notes of the case I owe to Dr. Brockbank and my Clinical Clerk, Mr. Satchell.

The patient was a man—-J. B., aged 44—who had enjoyed good health until five weeks before seeking admission to the hospital. At that time he consulted a doctor on account of abdominal pain, and because his water was thick, scanty, and high coloured. As he did not improve, he attended at the General Hospital as an out-patient, and was admitted on May 31st, 1893. He rapidly got weaker, and died on June 7th.

June 1st. *Condition on admission.*—Patient is of medium height, sparely developed, and rather emaciated. Has a well-marked cachectic look, with many venæ stellatæ on the cheeks and nose. The veins on the body also are rather prominent, but not varicose. Some exophthalmos of the left eye and inequality of the pupils, the left being larger than the right. No jaundice, and a slight amount of œdema is present over the sacrum only. The left scapula is enlarged as by a new growth, and there is a small tumour in the fascia of the left arm. Axillary glands not enlarged apparently.

Alimentary System.—Tongue furred and brown, mouth dry. No appetite, but very thirsty. Complains of a pain in the stomach, which is worse at night. Some flatulent distension present after meals. Has a feeling of sickness at times. Bowels irregular and of a natural colour.

Abdomen enlarged, full, and tense, due to the increase in size of the liver, which reaches to the umbilicus. The liver is smooth, but with two or three large nodules about the size of a hen's egg; its upper limit is the fifth rib, and it extends downwards for seven inches in the vertical nipple line, and on the left side merges into the splenic dulness. Rectum normal.

Circulatory System.—Apex beat in the fourth interspace, immediately under the nipple. Cardiac impulse diffused and rather thumping. No other abnormalities present. Pulse 88. Resp. 27. Temp. 98°.

Respiratory System.—Dulness on percussion over the left lung in the supra and infra clavicular regions, the latter merging into the cardiac dulness. The lung in the axilla, and just internal to the shoulder joint, is resonant. The limit of the dulness on the right side is the left edge of the sternum. Posteriorly, resonance is slightly impaired over the scapular region of the left lung. Over this area of dulness and impaired resonance vocal fremitus is much diminished and the breath sounds are feeble. No bronchial breathing. The right lung is normal.

Urinary System.—Urine 38 oz.; sp. gr. 1020; acid, haze of albumen. No blood, sugar, or casts. Some difficulty in micturition.

Laryngoscopic Examination shows the right cord to be moving freely both in abduction and adduction. The left cord is in the position of cadaveric rigidity, and does not move on phonation. The voice is slightly husky.

Ophthalmoscopic Examination.—Pupils unequal: the left being greater than the right; both re-act to light and to accommodation. The cornea in the *left eye* is scratched, and the media are rather dull. The optic disc is ill defined in shape, and difficult to make out. There is some neuritis. In the *right eye* the disc is more easily seen. Its edges are irregular. There is also some neuritis. No new growths seen in either fundus.

PATHOLOGICAL REPORT.

The body is considerably emaciated, but the abdomen appears enlarged, this being due to the marked increase in size of the liver, on the surface of which are several *bosses*. On opening the body, the left lung is found to be considerably retracted under the ribs, while the right comes past the middle line. The peritoneal cavity contains slight excess of serum, but is otherwise healthy.

The left lung (1 lb. 14 oz.) shews extensive pleuritic adhesion and feels extremely dense. Surrounding the main branches is a mass of enlarged and somewhat indurated glands, extending from those at the bifurcation of the trachea, which are also enlarged and hard, into the lung. The bronchial tube is encircled by these to such an extent that its lumen is considerably diminished. This mass of glands is especially developed just under the aortic arch, where it has evidently involved the recurrent (left) laryngeal nerve and the posterior pulmonary plexus, the filaments of which are very distinct and appear thickened. On making a vertical section through the lung, a large white dense mass is found, which involves almost the whole of the upper lobe, measuring three inches in diameter. It is very hard, fibrous, and contains alveoli filled with degenerated cellular *débris*. The main portion is fairly well defined, but careful examination beyond the more fibrous portion shews that the lung-tissue is being infiltrated by a grey-white granular substance. Those parts of the lung not so involved are very œdematous. There is a direct continuation between this mass and the bronchial glands just described.

The right lung is much increased in size, but with the exception of a nodule at the apex, resembling the other in character, and which has caused a local pleuritis, there is nothing special to be found.

Liver.—This organ weighs 11½ lbs., and is enormously increased in size, this increase being due to large secondary growths, some being four inches in diameter. Those which have reached the surface are umbilicated. On section, they are mottled pink and white, and are very much softer than the growth in the left lung. Although the greater part of the liver is converted into or involved by growth, the transverse fissure is singularly free, and nowhere do the bile ducts appear compressed. The liver substance, where not invaded, is mottled green and yellow, being evidently fatty.

Kidney. — The left kidney (7½ oz.) shews, at its lower extremity, a well-marked nodule about an inch in diameter. Otherwise, the organ presents congested vessels and a broad pale cortex. The right kidney shews no growth.

Pancreas.—The pancreas (11 oz.) shews an irregular growth of tumour nodules, more especially towards the tail-end. On section of the organ, extensive infiltration is found, and at some parts the transition from glandular structure to tumour can be observed.

Alimentary Canal.—The œsophagus shews some varicosity of the vessels. The mucous membrane of the stomach shews small ecchymoses, but there is no appearance of growth, both orifices being perfectly healthy. The intestinal tract, from pylorus to anus, appears also healthy, but some mesenteric glands shew infiltration.

The *heart*, *supra-renals*, *bladder*, and *spleen* were all examined, and shewed nothing abnormal except some fatty degeneration in myocardium.

Brain.—The dura mater shewed a considerable tumour mass at uncture with tentorium and on each side of the falx cerebri. On section across the longitudinal sinus through the tumour, the lumen is found to be filled up by a mass which presents the same naked-eye appearance as the adjacent mass on each side of the falx. Both occipital lobes, where they come in contact with the falx, shew nodules about one inch in diameter, which extend from the margin of the longitudinal fissure downwards into it. These nodules are extremely soft, and, on section, shew evidence of hæmorrhages. In one or two convolutions very small nodules, about the size of a pea, are found.

The mass removed from the right triceps muscle appears, on section, to be an infiltrated gland.

The scapular tumour consists of a somewhat soft mass infiltrating the infraspinatus muscle and all the tissue right down to the bone, which is in a condition of caries.

Microscopic examination was made of the lung, liver, and scapular tumour.

(a) Lung.—In parts, the pulmonary tissue is quite replaced by dense fibrous stroma. At others, where the growth is not so advanced, the lung substance appears to be undergoing transformation into a stroma, with alveoli filled with cells. These latter are of various sizes, nucleated, and evidently of epithelial origin. At points, the cell-growth is in excess of the stroma, and appears to infiltrate the lung tissue; while in other places, there are distinct lines of cells in the lymphatics.

(b) Liver.— Here much the same conditions are found, except that there is a much greater amount of cell-growth with very little stroma; consequently, the alveoli are less defined and the whole is extremely soft, so that it is difficult to make out the exact amount of alveolar contents. With a low power, however, it is plain that the same arrangement exists of alveoli formed by fresh connective tissue, and containing a large amount of nucleated cells.

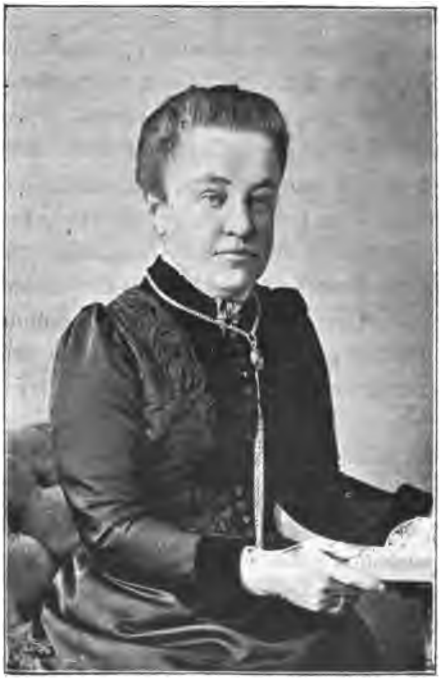
(c) Scapula.—The tumour here also shews the arrangement described above, but with even less stroma.

The tumour would therefore appear to be a very malignant form of carcinoma, judging from the extensive secondary growths and the very soft nature of the tissue, the pulmonary tumour being apparently the primary.

MYXŒDEMA.

BY EDGAR DUKE, M.R.C.S., ST. LEONARDS-ON-SEA.

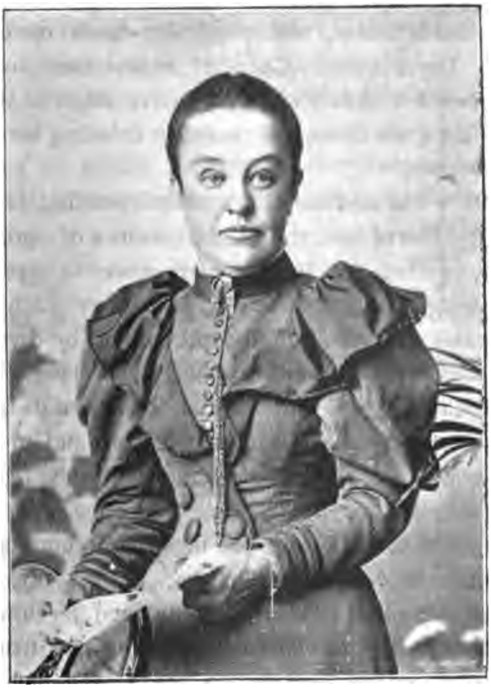
The patient, a lady aged 42, dates the commencement of her illness from the spring of 1892, when she had influenza. Previous to this she had been growing stouter, but the swelling was not marked. She had become more apathetic, and had a dread of catching cold.



February, 1893.

In February, 1893, the principal symptoms were (1) swelling of the face, eyelids, nose, and lips; (2) well-marked transverse wrinkles on the forehead; (3) shortness of breath; (4) a degree of apathy; (5) sensitiveness to cold. The face generally was florid, with some tawny discolouration of the skin in places; the nose was red. There was no swelling of the feet or hands, no loss of hair, nor slowness of pulse. In place of marked wasting of the thyroid, there was a goitre upon the right side of the neck. Weight 8 st. 11 lbs.

The appearance of the patient so much resembled myxœdema, in spite of the absence of some important symptoms, that I began treating her with the thyroid powders recommended by Dr. Arthur Davies. (Vide *B. M. J.*, Feb. 4th and Feb. 11th, 1893.) Each powder represents the active principle of one-sixth of a gland. Half a powder was given every other day at first, and then daily; this dose was not exceeded. The weight was reduced 5½ lbs. by eleven powders; the face became brighter and smoother, the nose less florid, and the wrinkles on the forehead less marked; manner and expression became more



May 26, 1893.

buoyant, and she was thought to be more energetic; although feeling weak, she was able apparently to do more.

March 17th. Weight 8 st. 5½ lbs.

March 31st. After the period, just over, there seemed to be an increase in the puffiness of the face.

May 13th. Weight 7 st. 11 lbs.

June 1st. After 21 powders (that is, 42 halves). For a month past the half powders have been taken irregularly, sometimes two in a week or three in two weeks. The alteration in figure is maintained and the general condition is good; mentally she is active, and physically much more so than formerly. There is marked general improvement, and she has rallied from the weakness which the active effect of the thyroid in one-twelfth grain doses had caused in reducing her weight by fourteen pounds.

Remarks.—The absence of (1) general swelling, (2) slowness of pulse, (3) loss of hair, and (4) the presence of a goitre on the right side, in a case which the remedy proves to have been one of myxœdema, are points worthy of notice. Early diagnosis of such cases may result in the prevention, by thyroid treatment, of the great disfigurement which follows later.

Dr. Goodhart agreed with me that, in spite of the goitre, the case was extremely like one of myxœdema, and to him I am indebted for support in the diagnosis, and in the report of the case.

The notes of the following case illustrate an unusual effect of thyroid extract in *increasing* weight.

The patient, a lady aged 29, had suffered for upwards of a year from a troublesome anæmia, which resisted treatment by iron. She failed considerably in health, and suffered from debility, and exhaustion. The anæmia was not profound, nor were the lips pallid; puffiness of the face was marked. Iron in various forms produced diarrhœa, and change to Malvern and Scotland made no marked difference in her condition. St. Raphael wine was of use, and Burgundy was afterwards taken regularly. The puffiness of the face and nose, marked debility, and failure of iron led me to try thyroid powders in half doses given three times a week. Arsenic was given simultaneously twice a day, thirty doses in all being taken. April 19th, weight 9 st.; May 3rd, weight 9 st. 6 lbs. With this gain in weight considerable improvement followed, and friends noticed a great alteration in her appearance; the features gradually fined down, and strength and energy returned.

For a time there was a red patch in the cheeks, but as she suffered also from dyspepsia, which required treatment, it cannot be certainly considered as an important symptom.

In the June the quantity of thyroid was reduced to two doses a week.

July 3rd, weight 9 st. 4 lbs. Thirteen powders have been taken.

The gain in weight and general improvement cannot be attributed to the small quantity of arsenic distributed over so long a period.

Cases under Mr. Barling at the General Hospital.

CARDIAC AND RESPIRATORY DEPRESSION THREATENING DEATH, PRODUCED BY INHALATION OF ÆTHER.

COMMUNICATED BY J. A. BERLYN, M.R.C.S.

E. W. (f.), æt. 19, was admitted to the General Hospital, Birmingham, on May 8th, 1893, under Mr. Barling, with a swelling of a doubtful nature in the right anterior lumbar region. The Cardiac and Respiratory Systems and the urine were examined immediately after admission and nothing abnormal was found. The patient was kept under close observation in the hospital until July 1st when, a diagnosis of "cold abscess in connection with the lumbar vertebræ or ilium" having been made, it was decided to empty the abscess by a posterior incision in the loin. The patient was duly prepared for operation, and æther was chosen as the most suitable anæsthetic. Whilst the patient was on the table the heart was again examined, but with the exception of a rather rapid action ascribed to the excitement natural to the circumstances, nothing abnormal was discovered. The patient was reassured and the administration of æther begun, Clover's inhaler being used. The bag was discarded and the æther very gradually turned on until the mark 3½ was reached. Towards the latter part of this stage the respiration became rapid and shallow, and observation of the pulse shewed that after ten ordinary beats two or three of decidedly weaker character followed. The bag was now inflated and applied, and access of air under the face-piece prevented by gentle pressure. After a few breaths in this manner the pulse became exceedingly feeble, the respirations very rapid and shallow, and the surface cold and sweating, so the administration was entirely suspended. After an interval of a couple of minutes, the pulse and respiration having improved, the administration was recommenced with the indicator at 1, and without the bag; with the gradual increase of æther precisely similar—but this time more marked—phenomena occurred, the pulse altogether failing at the wrist, and the anæsthetic was again stopped; the patient's head was lowered, the chin advanced, and a rectal injection of brandy given. Under this treatment the patient recovered somewhat, and was removed to bed, being carried there with the head lowered.

On her arrival half an ounce of brandy was given by the mouth, hot bottles were applied, and the foot of the bed raised. Ten minutes later the patient vomited, returning only the brandy just given, and after this she gradually recovered. The patient breakfasted at 5.30 a.m. and the anæsthetic was begun at 10.30 a.m.

At no time during the administration was either the conjunctival or light reflex abolished. The heart was next day again carefully examined and no abnormality was found.

It is remarkable in this case that in spite of the existence of no obvious abnormality in either the Cardiac, Respiratory, or Urinary Systems, the condition of the patient became steadily worse from the commencement of the inhalation of æther to the moment of its ultimate discontinuation.

RENAL CALCULUS AND PYONEPHROSIS.

M. B., female æt. 32, married eight and a half years (four children), was admitted to the General Hospital, Birmingham, under Dr. Saundby, on April 26th, 1892, complaining of swelling of the face, legs, and belly, which had been present for ten weeks.

History.—The patient was always in good health until two years ago, when she began to have attacks of vomiting, which lasted for two or three days, and were separated by intervals of about a week. She was at this time in advanced pregnancy, the child being born in July, 1890. The vomiting continued until one month before admission, being at its worst three months before. As mentioned, the face and legs began to swell ten weeks before admission, but this swelling, like the vomiting, had been less marked during the last month. She never had any greater pain than a little aching in the right loin. There was nothing in the family history bearing on the illness.

Condition on Admission.—There was œdema of the face, legs, and body; no pyrexia; pulse 96; respiration 20; and slight dyspeptic symptoms.

On examining the abdomen, which was for the most part flaccid, a swelling was felt in the right lumbar region, extending forward to within two inches of the middle line, and downwards from the costal margin to the level of the umbilicus anteriorly, and almost to the iliac crest laterally. This swelling was rounded in shape, "firm" in consistence, and tender on deep palpation. There was dulness on percussion over it, which was continuous with the liver dulness in the vertical nipple line, the two together measuring seven and a half inches; to the left of the vertical nipple line the areas of dulness were *not* continuous. On the left side there was also a lump to be felt below the costal margin, which could be pushed up from the loin.

The cardiac system was normal, with the exception of a reduplication and accentuation of the first sound in the fourth interspace, where the impulse was most marked. Pulse 96, low tension.

Respiratory system normal.

The *urine* averaged in the first four days after admission 24 oz.; s.g. 1022. Reaction acid: it contained pus and blood and 1·4 per cent. of urea, and on one occasion a few granular casts.

On April 30th the right kidney was explored by Mr. Barling, the incision being made in the loin posteriorly. It was found that the kidney was much enlarged downwards, and contained a calculus weighing 74 grains, which lay in a small collection of pus within the kidney pelvis, and just above the crest of the ilium. At the closing of the wound after the flushing of the cavity, a drainage tube was left in.

May 1st. Pulse 108, Respiration 24, Temperature 100.5°. The patient had vomited during yesterday and last night. Evening temperature 99.8°.

May 2nd. Tube shortened; nothing but urine had escaped from it. Temperature 97°, Pulse 92, Respiration 24.

May 8th. Tube was this day left out. At no time since the operation had any pus escaped from the wound.

May 15th. Patient vomited once; there was ascites, and dropsy of the legs.

May 26th. Patient had gradually improved, but there was still some dropsy of the legs.

June 7th. Average daily amount of urine during the last week has been 70 ounces; sp. gr. 1010; urea 1·6 per cent.

The patient left the hospital on June 18th feeling well, but she still had some slight œdema of the face and legs.

THREE CASES OF GANGRENE OF THE INTESTINE IN STRANGULATED HERNIA,

WITH REMARKS ON THE TREATMENT OF GANGRENOUS INTESTINE AND REPORT OF A SUCCESSFUL CASE.

BY GEORGE HEATON, M.A., M.B., OXON., F R.C S.
ASSISTANT SURGEON, GENERAL HOSPITAL.

During last autumn there were under my care three cases of strangulated hernia in which gangrene of the intestine had taken place. Such cases are happily nowadays rare, and are of interest, partly because of their infrequency, and partly because of the difference of opinion which still exists as to the best mode of dealing with them. I give a short clinical abstract of the cases as they occurred.

Case 1. *Strangulated Inguinal Hernia with gangrene of the intestine; artificial anus made; death on tenth day.*

T. N., aged 57, a thin feeble man, was admitted into the General Hospital with a large left inguinal hernia which had been strangulated for three days. The hernia had been irreducible for some years, and he had never worn a truss regularly. Latterly he had suffered from bronchitis, and it was during an attack of coughing three days previously that the hernia became strangulated. Since then he had suffered acute pain in the rupture, vomiting had been continuous, and constipation complete.

On admission he was given a hot bath, and taxis was applied by the house surgeon. The hernia had some impulse in it, and was partially reducible. The next day, as the symptoms remained unaltered and the vomiting continued, I performed herniotomy. On opening the sac, some bloody fluid escaped. The exposed intestines were congested, but there was no constriction at either the external or internal abdominal rings. On further examination, a coil of intestine was found tightly strangulated by a fibrous band passing across the sac from one side to the other at its fundus. This intestine was, for an area of a crown piece, dull, lustreless, and greyish green in colour. The constricting band was divided, the intestinal coils well irrigated, and the healthy intestine returned into the abdomen. The healthy gut above and below the gangrenous portion was then stitched to the neck of the hernial sac with fine silk sutures—in fact, treated as an inguinal colotomy. The patient vomited once after the operation, but remained very restless and exhausted all that night. He was for the first two days fed entirely per rectum. On the second day after the operation the gangrenous area, which had increased considerably in size, was excised. He passed liquid fæces and flatus freely through the artificial opening and per rectum. There was no pain or abdominal distension, but he still remained very restless at night.

The after-history was briefly as follows:—Fæces came away freely from the artificial opening, which remained soundly sealed off from the general peritoneal cavity. He took fluid nourishment with avidity, and retained it all. There was no abdominal tenderness or distension. But in spite of all, he gradually became weaker, and sank on the evening of the tenth day after the herniotomy.

At the *post mortem* examination the artificial anus was found to be situated high up in the small intestine. The peritoneum was completely sealed at the internal abdominal ring, where the artificial anus existed, by plastic lymph. There was no excess of fluid in the peritoneal cavity, or any evidence of general peritonitis. The intestine above the opening was darkly stained but empty.

Case 2. C. M., aged 50, housewife, was admitted into the hospital on October 25th suffering from a strangulated umbilical hernia. The patient had had for many years a large irreducible umbilical hernia. Seven days previously to her admission this had become strangulated, and symptoms of acute intestinal obstruction had continued up till admission. Several purges had been administered, and during two days before admission hot salt had been vigorously rubbed into the abdominal walls.

On admission, the patient was almost moribund. Her pulse was frequent, small, and soft; her face pinched, and extremeties blue. The skin around the umbilicus for an area of twelve inches was black and gangrenous, and the abdominal wall was reddened and inflamed all over. An incision was made through the gangrenous skin. The sac was full of fæces and decomposing pus, and contained gangrenous omentum and a coil of intestine, more than three feet in length, gangrenous. This was opened. The patient expired a few hours afterwards.

Case 3. C. R., 34, male, a brewers' drayman, was admitted on November 20th with a large strangulated right scrotal hernia. In 1888 he was invalided from the army on account of an inguinal hernia which, eighteen months ago, became irreducible. Three days before admission, whilst lifting a heavy barrel, this became strangulated. Since then he has suffered intense abdominal pain with constipation, and incessant vomiting, which has lately become fæcal. Taxis was tried unsuccessfully. A herniotomy was then decided upon. On opening the sac of the hernia, some darkly-stained fœtid fluid escaped, and a large mass of dark-coloured omentum was exposed, the blood vessels of which were in places thrombosed. On raising up this mass, a small knuckle of intestine was seen, of a mottled green colour and devoid of lustre. It was decided to ligature and excise the omentum, and then to deal with the gangrenous bowel. This was done. The omentum was ligatured with numerous fine silk ligatures, thoroughly cleansed, and returned. But in returning the omental stump after division of the stricture high up at the neck of the sac, the intestine slipped back into the abdominal cavity with it, and could not be withdrawn. A large glass drainage tube was passed up the inguinal canal and fixed in contact with the stump of the returned omentum. The neck of the hernial sac was closed around the drainage tube, and a counter-opening made through the scrotum into the fundus of the sac. During the night the patient remained very restless in spite of hypodermic injections of morphia. The tube was emptied every two hours of foul-smelling sanious discharge.

On November 21st the glass tube was removed and a large thick indiarubber one substituted; the patient still remained very restless. His temperature, which rose to 104° on the night after the operation, fell to 102°, and towards evening he became quieter and slept a little.

On November 23rd the discharge through the tube, which had had a fæcal odour the previous day, became pure fæces, and remained so till December 5th, setting up considerable eczema round the wound. For a week or so afterwards the pus which escaped had a fæcal odour but became less and less offensive, until by December 14th it had again become quite sweet. The bowels were moved naturally on November 26th, the sixth day after the operation, and continued regular afterwards.

Attempts were made on December 8th and 10th, and a third on December 13th, to dispense with the drainage tube, but on each occasion it had to be replaced owing to a return of abdominal pain and pyrexia. The patient left the Jaffray Hospital in March last, well and strong, but still with a short sinus at the site of the old hernia which discharges daily about a drachm of pus.

The first case was disappointing, the patient, though escaping the dangers in connection with the separation of the mortified gut, sinking from exhaustion and inanition. At the *post mortem* examination the peritoneum was found to be firmly sealed, and there was no trace of peritonitis or distension of the intestine above; but the opening was situated high up in the small intestine and the patient an enfeebled and debilitated subject.

The second case is a good example of the terrible results of treatment based on ignorant advice and fear of the surgeon's knife. The woman's life was probably sacrificed and her last days rendered a living torment by the barbarity of rubbing hot salt into the mortifying and inflamed skin.

The third case happily recovered. A small fæcal fistula formed which soon closed, and the man at present enjoys perfect health save for a small sinus which has not yet closed.

Cases of strangulated hernia when the bowel has become gangrenous are always desperate, and the mode of treatment adopted will depend in great measure on the general condition of the patient at the time of operation, and the resources at our command.

There can be but little doubt that the ideal mode of procedure, where the whole circumference of a coil of intestine is already dead, is a removal of the dead portion through healthy intestine and a reunion of the divided ends of the intestine by one of the many modes of intestinal anastomosis. This resection is however rarely permissible owing to the long time necessary for its complete performance and the additional shock it necessarily inflicts on an already collapsed patient. But in the rare event of gangrene of the intestine in a young patient, where there is not much collapse, such a measure would afford the best prospect of a radical cure.

When the intestine is treated by leaving it *in situ*, with or without division of the constricting band, even though he survive the risk inseparable from the formation of an artificial anus, the patient frequently dies of inanition; the absorbing surface of his large intestine and the part of the small intestine below the artificial opening being lost to him. He has then to undergo the additional risks connected with operations undertaken for the closure of this opening. Still in the vast majority of these cases the formation of an artificial anus at the herniotomy wound is the only course open to the operator.

The much-debated question whether the constriction shall be divided as Dupuytren and Sir Astley Cooper advised, or whether an opening shall merely be made in the gangrenous intestine as Travers and Lawrence were accustomed to do, must, I think, be decided in favour of the former. It is true that by such division the risk of fæcal extravasation into the peritoneal cavity is said to be increased, and that in a few rare cases a fæcal fistula with eventual recovery forms even when the stricture has not been divided. The vast majority of such cases, however, die of unrelieved intestinal obstruction.

When a coil of intestine is completely gangrenous, and resection of the mortified gut is out of the question owing to the patient's condition, after thoroughly cleansing the sac and its contents the stricture should be divided, some healthy intestine drawn down and treated as in an inguinal colotomy, by stitching its peritoneal coat to the serous lining of the neck of the hernial sac. After careful packing with gauze, the gangrenous part may then be opened, or, if the patient's condition will permit it, the opening may preferably be delayed some hours.

When the condition of the intestine is doubtful, or when only a portion of its circumference is gangrenous, it may be wise to replace the coil just within the peritoneal cavity, taking care to secure a free drainage. This has been done successfully by Mr. Bennett* in two cases, and was unintentionally done in my third case, where the gangrenous intestine slipped back through the internal abdominal ring; the patient in this case also recovering after the formation of a fæcal fistula.

PERISCOPE.

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SURGICAL DISEASES OF THE GENITO-URINARY ORGANS.

BY GILBERT BARLING, B.S., F.R.C.S.

(Continued from page 44.)

In the *Annals of Surgery* for June, 1893, is a suggestion by Dr. Bristow, of Brooklyn, that air should be used to distend the bladder in supra pubic cystotomy instead of fluid. The author, as demonstrator of anatomy, has been in the habit of distending the bladder in this way in the dissecting room, and, although he has not used this method in clinical work, his reasons are worth reproducing at length. Anything which shortens the preparatory details before the high operation, without at the same time interfering with the excellent results now obtained, will be welcomed by all surgeons.

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* Bennett. *Lancet*, 1890, vol. ii., p. 805.

After arguing that air is safer than water, because it is to some extent compressible and because of its lesser weight, Dr. Bristow says :—

"Its efficiency is next to be considered. I have asked myself whether air insufflation was competent to dilate a bladder, the walls of which were, perhaps, much hypertrophied. Yet in the dissecting room we are accustomed to see the students inflate an abdominal cavity, no matter how thick its walls. If a bladder is capable of dilation at all I believe this can be accomplished by the use of air. I have never met a case in the cadaver in which air did not promptly lift the bladder out of the pelvis. There is a great difference in this respect between air and water. Water first fills up the lowermost parts of the bladder and does not lift it out of the pelvis at all; in fact, the weight of the water has a tendency to keep the bladder lower down, and it is only as it is fully distended with fluid that the anterior wall rises above the symphysis; indeed, the rectal bag must be used before the bladder can be brought well within reach. The first effect of the water is to distend the most dependent part of the bladder, which is the very part which does not concern us with reference to the incision, and is besides most likely to give way. Air, on the contrary, at once lifts, not only the anterior wall and fundus up against the abdominal wall, but the whole viscus as well. This fact was strikingly shown in my experiments. The very first syringeful of but four ounces of air caused the abdominal parietes to bulge slightly over the pubes, whereas with water nothing of the sort occurred, as the water ran down to the most dependent part of the bladder and spread out laterally, distention taking place against gravity, with the bladder flattened out on each side by the weight of the contained fluid. With air, on the contrary, as the posterior wall of the bladder rests against the pelvic floor and its contents, the direction of least resistance to the entering and weightless gas is in the line of the fundus, and there being no weight in the bladder, it is consequently brought up at once against the abdominal wall and promptly carries the fold of peritoneum out of the way.

"The question may here be asked whether there is not danger of infecting the bladder with the injected or insufflated air. With regard to expired air it is said to be sterile, therefore insufflation would not be open to this objection.

"If it is desirable to measure the amount of air injected, and a syringe is used for purposes of inflation, it will be sufficient to interpose between the syringe and the injecting nozzle a glass tube filled with a filter of sterilized wool. The danger of infection, however, is somewhat fanciful, as a bladder which requires supra-pubic cystotomy is sure to contain pyogenic organism already. [? G. B.]

"In opening the bladder afterward, air has another advantage over water, which is, that it gives a dry wound instead of one filled with blood-stained fluid escaping from the opening in the incised bladder wall. It may be urged against inflation that, because of the compressibility of air, the amount of distension cannot be well estimated nor the quantity of air measured. In my experiments on the cadaver I had no difficulty in determining the locality of the bladder by percussion, and the quantity of air was measured naturally by the capacity of the syringe used. There should be no difficulty in making similar estimates in a hypertrophied bladder, because, if it can be distended at all for the purposes of the operation, it must rise above the symphysis, and what water will do in this direction, air will accomplish much more safely. The question of hypertrophy does not concern the agent used to distend the bladder so much as the degree of force which may safely be used in the distension, and in such a case air appears, for the reason given, to be safer than any fluid. Thickened bladder walls, it is true, might, to a certain extent, mask the resonance of the contained air, yet in such a case it is equally true that it would be difficult to appreciate increased dulness when fluid had been used.

The increased resonance in one case would be greater than the increased dulness in the other. If a hypertrophied and thickened bladder can be lifted in the pelvis at all; if, by its distension, the fundus can be carried above the symphysis, and the anterior wall thus rendered available for the extra-peritoneal incision, air, adding as it does no weight to hold the viscus anchored in the pelvis, will, by virtue of its elasticity, prove not only more efficient, but far safer than water.

"For the purpose of retaining the air in the bladder, I have found the best method to be the compression of the urethra at the hands of an assistant. It is sufficient to insert within the meatus the conical nozzle of a hard rubber syringe, which is pushed in far enough to prevent the air from escaping by the side of the nozzle. If there is, however, such obstruction at the neck of the bladder to forbid this, a soft catheter may be slipped over the syringe tip, and the air thus be compelled to enter the bladder."

PARIS ACADEMY OF MEDICINE.

Symphyseotomy in a man; Resection of the Bladder.—Dr. Albarran shewed a man, aged 31, on whom he performed symphyseotomy in the first instance, followed subsequently by the resection of a large portion of that part of the bladder wall which lies below the level of the pubes. The patient had been operated on in April, 1890, for a pediculated tumour of the bladder which was removed through a supra-pubic incision. A year later he again complained of hæmaturia, and on examination with the cystoscope a sessile epithelioma was found growing from the base of the bladder close to the neck and extending to the left lateral wall of the viscus. The operation was performed on September 9th, 1892. A vertical incision was made from a point three fingers' breadth above the pubes to within one centimetre ($\frac{2}{5}$ inch) of the root of the penis, where it was joined by two lateral and shorter incisions so as to form a Y turned upside down. The penis being thus moved out of the way, the abdominal wall was cut through and a retractor introduced between the bladder and the pubes. The symphysis was then attacked from above downwards and from before backwards, first with the knife and then with the chisel and mallet. The thighs having been flexed and abducted, the pubic bones were easily drawn apart to a width of forty-two millimetres (a little under two inches) There was then no difficulty in excising a large portion of the inferior and left lateral walls of the bladder. The wound in the bladder-wall was closed by a double row of sutures and a catheter was introduced and left in position. The patient was kept for seventeen days in Bonnet's splint, and the subsequent progress of the case shewed nothing of special interest. On the twenty-third day a perineal fistula formed owing probably to obstruction of the catheter, but it subsequently closed spontaneously. The patient gained weight and resumed his occupation and walks without the slightest discomfort. The condition of the parts is very satisfactory, seeing that all that remains of the operation is a small cicatrix and that the patient is able to retain his urine for three hours.—*Medical Week*, Jan. 20, 1893.

In connection with this case it will be very interesting to quote the following abstract from the *Brit. Med. Journal*:—

Symphysiotomy in Bladder Operations. — Wickhoff (*Wien klin. Woch.*, No. 11, 1893) states that, in consequence of the frequently-experienced difficulty in suprapubic cystotomy for vesical tumour of freely exposing the seat of the disease, several attempts have been made to render the affected portion of the bladder more accessible by temporary or partial resection of the anterior part of the bony pelvis. This difficulty, however, may, he thinks, be overcome by resorting to a less formidable procedure. The recent experience of symphysiotomy in obstetric practice, by which it has been proved that this operation is neither dangerous in itself nor likely to cause any subsequent trouble in locomotion, has led the author to consider the advisability of practising it in suprapubic cystotomy, with the object of rendering the interior of the bladder more accessible. He describes an operation he has performed on the cadaver, in which, after complete section of the symphysis and separation of the pubic bones, the anterior surface of the bladder is so freely exposed that an incision may be made through the anterior wall of this viscus, about four inches in length, and reaching to a point about one inch above the internal orifice of the urethra. Every part of the interior of the bladder was thus exposed, so that it was found possible, without difficulty, to resect the lower extremity of one of the ureters, to excise a piece of the lowest portion of the posterior wall of the bladder, and to seize with forceps and cut away the middle lobe of the prostate. Symphysiotomy, the author states, is especially indicated, not only in the rare cases in which a tumour is seated on the anterior wall of the bladder, but also in the more frequent instances of a tumour growing from the inferior portion of the posterior wall. It would be found useful also, he thinks, in operations for vesico-vaginal fistulæ. Transverse incision of the anterior wall of the bladder is held to be objectionable, and section of the recti muscles is apt to result in a tendency to hernia. In dealing with objections to his proposal, the author states that the length of the wound in the bladder would not increase the dangers of suprapubic cystotomy provided proper care be taken to close this by well-prepared and closely-applied sutures. With regard to the risks, both immediate and remote, of division of the symphysis, it is pointed out that the almost universal testimony of obstetricians to the rapid and perfect consolidation of this structure after forcible separation affords a proof that symphysiotomy does not in itself constitute a serious complication in the operation on the bladder.

VIENNA IMPERIO-ROYAL MEDICAL SOCIETY.

Prostatectomy.—Prof. von Dittel described a case of prostatectomy. This operation has only been performed on three other occasions, on each of which it was attended by disastrous results. In Professor von Dittel's case, however, the patient survived. He was a powerful young man of 22, and for several years had suffered from hæmaturia. On examination, a firm ovoid tumour was found, which persisted even after evacuation of the contents of the bladder. With the cystoscope, a bunch of bleeding villosities were seen on the right wall of the bladder. The bladder having been opened by a supra-pubic incision, the villosities were scraped off, after which the cavity of the viscus was packed full of iodoform gauze. The prostate was then exposed by a vertical perineal incision, which extended to within a very short distance of the anal orifice. The capsule having been opened, the whole of the organ was enucleated with the finger. This part of the operation was facilitated by the peculiarly abnormal position of the urethra, which was situated in front of the prostate instead of passing through it as it usually does. The cavity left by the removal of the prostate was packed with iodoform gauze, and the bladder was drained. It was observed that fluid could not be made to pass from the bladder into the prostatic cavity, from which it was concluded that there was no communication between the two. A small communication was discovered, however, about the tenth day after the operation, but it rapidly became occluded by granulation tissue. Three weeks after the operation the prostatic cavity had been reduced to half its original size, and the patient was fairly on the road to recovery. The exact nature of the tumour had not been determined, the microscopical examination not having been completed.—*Med. Week*, June 16th, 1893.

PARIS CHIRURGICAL SOCIETY.

Intermittent Hydronephrosis and Nephrotomy.—Dr. Routier said he had observed symptoms of bilateral intermittent hydronephrosis in a patient who had suffered, when she was fourteen years of age, from attacks of pain in the region of the kidneys. These had been referred at the time to the presence of renal calculi. In 1884, some time after she had been confined, she had an attack of cystitis. The disease preserved a subacute character for a long time, but in spite of the various methods of treatment which were successively tried, the patient gradually became subject to acute exacerbations, and in 1889 she began to complain of severe pain in the right lumbar region. In 1891 the pain due to the cystitis became so violent that a consultation took place at which it was decided to establish a communication between the bladder and vagina. The operation was performed but without much relief to the patient. It was not until the month of August 1891 that she began to suffer from suppression of urine. This coincided with the passage of the motions and was associated with pain in the region of the right kidney, the attacks lasting from half an hour to several hours. As early as the commencement of 1892 the advisability of excising the kidney had been considered after a somewhat prolonged attack terminating in the passage of a large quantity of urine. When the patient was first seen the attacks had become very frequent; the right kidney was enlarged, the pelvis being evidently distended with urine. The left kidney presented very much the same appearances, and both organs were absolutely fixed. Lastly, pressure over either kidney was followed by the escape of urine through the vesico-vaginal fistula. Up to that time, however, the urine had remained clear, but in the course of an attack of suppression which lasted about a fortnight, the patient's temperature rose, the attack ending with the sudden escape of a quantity of purulent urine. From that moment it was evident that the case was one of suppurative hydronephrosis, and when the patient was seen again with Dr. Peyrot, the right kidney had returned almost to its normal size, while the left was still enlarged. The symptoms were so grave that nephrotomy of the left kidney appeared to be indicated in spite of the condition of the other organ. The operation was performed in June 1892, and four abscesses containing altogether about 35 ounces of very thick, greenish fœtid pus were opened. After careful scraping the abscess cavities were packed with iodoform gauze. Thereupon the urine again became clear, and for two months defæcation was not attended by any interference with the flow of urine. At the end of that time, however, the same phenomena reappeared, but with diminished intensity, and the urine remained clear. In February 1893 the vesico-vaginal fistula was closed. A month afterwards, when the patient was last seen, there had been no suppression of urine during defæcation, but the flow was sometimes suddenly arrested towards the end of the act of micturition, the sudden stoppage being accompanied by pain in the region of the bladder. At that time the nephrotomy wound was still discharging a certain amount of pus, and the right kidney was still enlarged.—*Medical Week*, June 2nd, 1893.

PARIS CHIRURGICAL SOCIETY.

Uretero-vaginal Fistula treated by Uretero-enterostomy; Recovery.—Dr. Bazy reported on an observation, communicated by Dr. Chaput, of uretero-vaginal fistula consequent on incomplete vaginal hysterectomy for double suppurative salpingitis. Dr. Chaput first thought of performing nephrectomy, but the results of recent investigations subsequently induced him to establish a communication between the ureter and the large intestine.

The operation was performed on December 13th, 1892. A long incision was made on the side (the left) corresponding to the fistula, along the iliac crest, and prolonged anteriorly in a curved direction parallel with Poupart's ligament. The ureter was found with some difficulty. It was considerably dilated. That it was really the ureter was shewn by the escape of some clear fluid on aspiration. It was seized above and below with forceps, and divided between the two. A communication was then established between the upper extremity and the sigmoid flexure of the colon. For this purpose the ureter was stitched to the gut by a row of sero-serous sutures. The intestine having been opened, the posterior edge of the ureteral opening was united to the posterior edge of the orifice in the intestinal wall by muco-mucous sutures. Finally, the anterior lips of both openings were brought together, first by muco-mucous and then by sero-serous sutures. Provision was made for proper drainage by means of salol gauze.

The patient made an excellent recovery, and shewed no signs of renal infection by propagation from the intestine. She has four or five liquid motions a day, which consist of a mixture of urine and normal fæces.

"Dr. Chaput gives us no information as to the exact situation of the ureteral fistula. From the way in which it was produced, however, it is probable that it was situated close to the bladder. The question may therefore be asked whether it would not have been a preferable proceeding to suture the upper end of the divided ureter to the latter viscus. Should the abdomen have been opened above the symphysis and the ureter have been found simply contracted, it would have sufficed to make an incision into the bladder in front of the ureter, and, after restoring the patency of the lumen by the passage of a catheter, to unite the edges of the ureteral orifice with those of the vesical opening. Should, on the contrary, the ureter have been found completely obliterated below the fistula, it might still have been possible to reach the dilated portion above the stricture by extending the incision in the bladder wall in the direction of the ureter. In this case also communication might have been re-established between the ureter and the bladder. Lastly, if the surgeon had not succeeded in finding the ureter by these means, the wound in the hypogastrium should have been closed and a new incision made in such a manner as to permit of the ureter being reached above the bladder. It should then have been sutured to the latter as it was to the sigmoid flexure.

"I consider that the bladder should by all means be preferred to the intestine in operations of this kind, on account of the inconvenience caused by the frequent motions resulting from the passage of the urine into the intestine, and especially because of the risk of invasion of the ureter by organisms from the bowel.

"I am prepared to admit that the establishment of a communication between the ureter and the colon may prove of service in certain cases, when the ureteral fistula is situated high up; but even then it is only to be regarded as a provisional undertaking, seeing that nephrectomy will have to be performed as soon as signs of renal infection make their appearance."—*Medical Week*, May 10th, 1893.

[It is important, if possible, to know eventually the fate of this kidney. These operations are nearly always followed by stenosis of the ureter and atrophy of the kidney.—G. B.]

PARIS ACADEMY OF MEDICINE.

Experimental Research on Electrolysis in the Treatment of Urethral Stricture.—Dr Tuffler reports: Dr. E. Desnos (working in Dr. Dastre's laboratory) has performed a series of experiments with a view to ascertain, in the first instance, whether any injury might arise from the application of electricity to the healthy urethra; and, secondly, whether this method was apt to give any satisfactory and permanent results in the treatment of urethral stricture. Dr. Desnos has found that the application of powerful currents (twenty milliampères for five and eight milliampères for ten minutes) to the urethra of a dog, gave rise seventy-five days after the operation to such extensive contraction of the lumen of the urethra at the point of application, as only to permit of the passage of a horse hair. The experiment was repeated a second time with the same result. Weaker currents, of four or five milliampères for example, do not give rise to any immediate or remote changes when applied to the urethra. How was the stricture brought about in the two dogs experimented on by Dr. Desnos? It was probably the result of cicatricial contraction consequent on the considerable ecchymosis which is apt to follow the application of a powerful current, as was found by killing the animal immediately after the operation. For the purpose of studying the influence of electricity in the treatment of urethral stricture, a traumatic stricture was artificially produced in the urethra of a dog behind the bony portion. The existence of the stricture having been ascertained, the current was applied. Immediately after this Dr. Desnos was enabled to pass a medium-sized bougie. The urethra, however, gradually contracted again until it only admitted a small instrument. To the results of his experiments the author has added those of twenty-five clinical observations, and on the whole it would appear that a relapse is the rule in cases of urethral stricture treated by electricity.—*Medical Week*, June 16th.

PARIS CHIRURGICAL SOCIETY.

Treatment of Urethral Stricture by Electrolysis.—Dr. Reynier said—"I wish to communicate the results I obtained with this method in the treatment of urethral stricture.

"Last year I tried electrolysis in the treatment of eight cases of stricture in all of which I adhered very closely throughout to the rules laid down by the most distinguished authority on this subject. In all these cases the stricture involved the membranous portion of the urethra, extending to within three or four inches of the meatus, and in none of them was there any doubt as to the diagnosis. This last point is not without importance seeing that it is essential in all experiments with a new method to avoid all possibility of error, and surgeons are all familiar with the difficulties which sometimes arise in the diagnosis of stricture of the urethra. Only a short time ago a patient was sent to me with a history of several attacks of retention of urine, for the purpose of having internal urethrotomy performed. On passing an olivary bougie the instrument was arrested about five inches from the meatus. This and the fact that a catheter was passed without difficulty when he had his first attack of retention, led me to suspect the spasmodic nature of the stricture. The patient having been anæsthetised a No. 40 Beniqué's bougie was passed without the slightest difficulty.

"My patients all were submitted to the same preparatory treatment previous to the operation, viz., irrigation of the spongy portion of the urethra, administration of salol for several days, and of sulphate of quinine the day before the intervention."

In one patient, a man of 34, internal urethrotomy had been performed in November 1891 for a very tight stricture of the membranous urethra. When he left the hospital a Béniqué's bougie No. 44 or 45 could be passed without difficulty, and for some time he used to come back at intervals to have a No. 20 bougie passed. He remained away for some time, however, and when he returned in April 1892 was admitted with his stricture almost as bad as it was before the operation. A very fine bougie was left in position, and on April 9th a current of from 15 to 20 milliampères was applied, but without success. The operation was repeated on the following day with a current of 35 milliampères, and at the end of a quarter of an hour the stricture had become permeable. For a few days afterwards everything went well, the patient being able to pass his water with perfect ease. On the fifth day, however, he had a rigor and a catheter was tied in position. When he left the hospital at the end of a fortnight his urethra admitted a No. 44 Béniqué's bougie. He was kept under observation for a month, but he has since been lost sight of, so that this case cannot be said to be very conclusive so far as the ultimate results are concerned.

Another patient was a man on whom Prof. Duplay had performed external urethrotomy in 1881 for rupture of the urethra consequent on a stricture. In 1891 he was admitted with a fistula due to the bursting of an abscess which had formed in connection with the cicatrix. The first two applications with currents of 35 and 40 milliampères remained without effect, while they were attended with a good deal of pain, especially the first. After an interval of three days the operation was repeated a third time with a current of about 30 milliampères, and at the end of five minutes an instrument could be passed into the bladder. A catheter was left in position for five days, at the end of which it was removed, but shortly afterwards the patient had a rigor, his temperature running up to 102·2° F., and the catheter was replaced. Twenty days after the intervention urine ceased to escape through the fistula, which rapidly healed up, and soon afterwards the patient left the hospital cured.

The same treatment was applied without success in two other cases in which the stricture was so narrow that it only admitted a very fine bougie with difficulty. In one of these the first application was followed on the same evening by a rigor and a rise of temperature. In the other the operation was repeated three times, but the third application was followed by lymphangitis with enlargement of the glands, while an abscess formed on the dorsum of the penis. In each of these cases the treatment was abandoned and internal urethrotomy performed instead.

In a fifth patient fever and signs of lymphangitis were also observed about the fifth day, coinciding probably with the detachment of the slough. A cure was obtained in this case, however, but with currents of from 35 to 40 milliampères.

In the remaining three cases the treatment was attended with much less difficulty, and the resistance of the stricture was overcome at the first operation. In each of these cases, however, the urethra was not so completely occluded as in the others, the stricture admitting a No. 3 or 4 Béniqué's bougie. Only one of these three patients had a rise of temperature after the operation.

To recapitulate, out of eight cases of urethral stricture in which the electrolytic method was tried, in two the treatment had to be abandoned and internal urethrotomy performed instead, while in three others the desired result was only obtained after two or three applications. In five cases electrolysis was followed by a rigor, in one by the formation of an abscess on the dorsum of the penis, and in two by signs of lymphangitis.

Currents of from 15 to 20 milliampères always failed to relax the stricture. To produce the desired effect in every case comparatively powerful currents had to be employed. Lastly, the treatment invariably gave rise to much pain which could not be avoided even by the previous application of cocaine.

Seeing that electrolysis could only be recommended as a means of treatment if a radical cure were to be obtained thereby, Dr. Reynier does not believe that we are justified in substituting this method for internal urethrotomy which, as it is performed now-a-days, is usually devoid of risk.—*Medical Week*, June 23rd, 1893.

NEW YORK PATHOLOGICAL SOCIETY.

Diffusion of Staphylococcus Pyogenes Aureus in Pyæmia following Urethrotomy.—Dr. T. M. Prudden reported a case of pyæmia following incision of a urethral stricture in a man twenty-four years of age. Nothing could be learned of his history further than that on the day following this operation, he became delirious, and his temperature rose to 106·6° F. and that his urine contained 6 per cent. of albumen with some pus and granular casts. He died the second day after admission. The autopsy showed the heart and lungs normal, the spleen soft, both kidneys normal in size and with free capsules, but these organs were studded with small petechial spots and abscesses. The peritoneum and the mucous membrane of the bladder were, in places, the seat of numerous petechiæ. A microscopical examination of the kidneys showed tiny abscesses containing cocci and numerous bacterial emboli in the small vessels. The spleen sections also showed numerous cocci, and cultures from the kidneys and spleen showed large numbers of cocci which ultimately proved to be the staphylococcus pyogenes aureus. These bacteria also furnished a notable example of the variations which sometimes occur in the metabolism of these organisms. Not only were they unusually slow in liquifying gelatin, but their metabolic powers in the way of producing the usual peptonising material were exceptionally feeble. After artificial cultivation for about six months, the bacteria regained their normal powers. The speaker remarked that when we knew more about these variations we might be able to explain certain abnormalities in the phenomena of infectious diseases at present not well understood.—*Medical Week*, March 17th, 1893.

The Treatment of Bubo.—Dr. F. Sedgewick Watson, in the *Journal of Cutaneous and Genito-Urinary Diseases*, Feb., 1893, advocates the excision of buboes, and an attempt to secure union by first intention of the wound. He relates twenty-two buboes operated on, with perfect union by first intention. In ten the cases were not picked, but taken as they presented themselves in his clinic. The operation was practically the same in all cases, the only difference being in modifications of the incision. The skin was inflamed over the bubo in all but four cases, and in some was more or less necrotic. In every case suppuration of the glandular structure had gone on to a greater or less degree. He uses one of two incisions in all cases when there is no necrosis of the skin. The one parallel to Poupart's ligament across the middle of the bubo, dissecting the skin up and down, thus exposing the glands, removing all diseased tissue, and uniting the wound with buried or ordinary sutures. The other, a crescentic cut, with the concavity upward, the base line being above Poupart's ligament and extending well down below the bubo into healthy skin; this flap is dissected up, the gland exposed, and thoroughly removed. The flap is then turned back and sutured. In some cases he drains by means of sterilised strands of silk through an opening made below the lines of incision. Where there is necrosis of the skin he uses the first cut, but modifies it by dividing it toward the middle, so as to form an ellipse which includes the necrosed area, and then removing it. He warns against wounding the spermatic cord and femoral vessels, and to proceed with great caution in dissecting around the vaginal ring, lest an unsuspected hernia be present—the writer having found one, and narrowly escaped wounding the gut. He draws particular attention to the tying of the ends of all lymph vessels that have been divided. If these are not ligated, a large quantity of fluid may exude and fill the wound, militating against primary union. He could not draw any conclusion as to the results from these cases, as some that were expected to heal by first intention did not, and others that did not seem so favourable at the time of operation healed perfectly. In all cases the average duration in hospital was much less than by the old method of treatment by poultice and incision.

Hæmorrhagic Infarction of the Testicle.—Professor Englisch relates three cases of hæmorrhagic infarction of the testicle, giving a detailed description of this rare affection, to which attention was first called by Volkmann. There are only six cases on record, three of which came under Professor Englisch's observation in the three years from 1889 to 1892. In five of these six cases the author found at the operation that the spermatic vein was thrombosed. The condition is associated with the same symptoms as are observed in cases of hæmorrhagic infarction of other organs. All the vessels of the affected testicle, down to the most minute, are congested and filled with red blood corpuscles. The essential elements of the testicular parenchyma are widely separated, and the internal aspect of the fibrous coat of the testicle is lined by hæmorrhagic extravasations, circumscribed hæmorrhages being also found in the substance of the testicle.

At the onset, the affection is accompanied by symptoms of peritonitis; the patient complains of pain in the abdomen radiating towards the testicles, with vomiting, diarrhœa, and fever. In a few days local manifestations make their appearance. These are almost exclusively confined to the testicle, the epididymis being usually but very slightly affected. The swelling of the testicle soon reaches its maximum. The inflammation rapidly extends to adjacent parts; the spermatic cord is swollen and firm to the touch. The subcutaneous cellular tissue becomes involved, the appearance of the scrotum being suggestive of the existence of a phlegmonous condition. The tunica vaginalis is of a dark red colour and very vascular; the testicle itself shews numerous enormously dilated veins, and the seminiferous tubules are scarcely to be recognised.

Infarction of the testicle is diagnosed by exclusion. The affection is the result of interference with the circulation in the spermatic vessels. Thrombosis of the pampiniform plexus may be of traumatic or infectious origin. From the fact that the patients were all between 15 and 17 years of age, Professor Englisch concludes that the thinness of the vascular walls in young subjects is a predisposing cause of hæmorrhagic infarction of the testicle.

In respect of treatment, Professor English is opposed to castration, which has been recommended by Volkmann and Maass. In early cases he has recourse to active antiphlogistic treatment, which was sufficient in one case to arrest the progress of the affection. When antiphlogistic measures fail, the author makes a series of deep incisions in the testicle. Convalescence is usually prolonged, but this method enables the patient to retain part of the affected organ and the corresponding epididymis, a circumstance which is not without importance, owing to its effect on the patient's feelings.—*Medical Week*, June 9th, 1893.

REVIEWS.

THE DIAGNOSIS OF DISEASES OF THE HEART AND THORACIC AORTA.*

THIS is as yet the *magnum opus* of our leading English authority on heart disease, for in such light have we long looked upon Dr. Sansom. We doubt if any other Englishman could have written a work on this subject so full of erudition and experience; and yet, perhaps, we had better say at once the volume, as a whole, falls somewhat short of our expectations, which were naturally very high. It teems with the facts of Dr. Sansom's rich and deep experience, and is a veritable mine of wealth to the student of cardiac disease. In detail it is beyond cavil, but it lacks the clear continuity which the firm and logical welding of a master-hand should have given it. The book is divided into three parts—Rational Diagnosis, Physical Diagnosis, the Sphygmograph and Cardiograph in Diagnosis.

In Part I. the symptoms and etiology of heart disease are discussed, Dr. Sansom making use of the phrase "Previous History of the Patient" instead of the latter term. This part occupies the first 55 pages of the work, and no other portion of equal size is, we think, of so great value. After a most useful and suggestive chapter on cardiac pain, he devotes one of the other six to a thoroughly judicial account of angina pectoris, and would wisely confine the term to the more serious forms characterising the vaso-motor variety of Douglas Powell under the heading "False."

Dr. Sansom lends the weight of his authority to the generally held view that organic heart disease and tubercle are mutually antagonistic. This is a statement of fact the truth of which we very much question; but, whether true or not, we cannot subscribe to our author's explanation of this antagonism. He says the abnormally increased blood-pressure in the pulmonary artery, and consequent hyperæmia of the lungs, prevents the growth of the bacillus, and instances the well-known converse proposition that congenital stenosis of the pulmonary artery, with its resultant pulmonary anæmia, so frequently causes tubercle. If this explanation be correct, then the conjunction of tubercle with mitral disease should be much rarer than with aortic. We believe the contrary to be the case. Moreover, then, Trousseau should have some rational ground for his creed that chlorosis was antagonistic to tubercle, as in chlorosis the blood-pressure in the pulmonary artery is usually high; but we know of no one now who, acting on this theory, refuses to give iron to the chlorotic with any phthisical predisposition, as Trousseau did.

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* The Diagnosis of Diseases of the Heart and Thoracic Aorta. By A. Ernest Sansom, M.D., F.R.C.P., Physician to the London Hospital.

But the antagonism, if there be one, is much wider than that due to difference in the blood-pressure in the pulmonary circulation. It is the incompatibility rather of two diatheses—two morbid tendencies—the one supplying fertile pasture for the bacillus of tubercle, the other inducing vascular degeneration, gout, and rheumatism, which we may call, with Haig, the uric acid diathesis, for want of a better term. The opposition is one between tuberculosis and atheroma, not that of endocarditis and pulmonary consumption.

In Part II. Dr. Sansom discusses physical diagnosis under the usual headings of Inspection, Palpation, Percussion, and Auscultation. This occupies 340 pages, and is the backbone of the whole volume, the workmanship being of most excellent quality; it shews that the author has spared no trouble but has studied the latest writings on the subjects treated. His wide reading and experience is shewn in the calm and comprehensive manner in which the various topics are dealt with. As to Absolute and Relative Cardiac Dulness we think Dr. Sansom's teaching is new. He tells us that the superficial or absolute dulness is that portion of the heart which is uncovered by lung "under all circumstances of respiration," whilst the portion of the heart "uncovered by lung in expiration" forms the deep and relative dulness. We believe and teach that the view generally held is as follows:—The absolute dulness is the area uncovered by the lungs when these are midway between expiration and inspiration, whilst the relative dulness represents an area outside of which no portion of the heart (neither covered nor uncovered by lung) lies perpendicularly beneath the plessimeter when the patient is supine. We need not point out how essential it is that accuracy and concord should exist in the matter of such primary definitions as these. "The pulmonary artery commences under the second left costal cartilage:" this is a point we have investigated a great deal in the *post mortem* room during the last few years, and we feel convinced that the third is a far more correct average position than the second. As to that ever present bone of cardiac contention—the position of the left appendix—Dr. Sansome still maintains that it "appears in the lower part of the second left intercostal space," though he admits that "William Russell has shewn that in some cases . . . . it is invisible when the heart is viewed from the front."

The author considers attentively the pathogenesis of the functional pulmonary systolic murmur. His views may be thus stated:—In Graves' disease it is obvious that vaso-motor changes largely exist; the thyroid arteries may present dilatations, with relative constrictions, owing to localised vaso-motor pareses, and hence will arise murmurs. Can it be doubted that arterial systolic murmurs may arise in chlorosis and anæmia from like causes? It would seem that the vaso-motor nerves are, on the whole, irritated—in a state of tonic spasm—as is shewn from the prevalence of high tension; but in certain arteries we get zones of dilatation producing murmurs. Yet it is unlikely that the pulmonary artery itself can be so affected by vaso-motor influence; its walls must be set vibrating by communicated vibrations originating elsewhere, in all probability in the conus of the right ventricle. The right ventricle, feeble from anæmia, toils to overcome the unusual obstruction, as shewn by the accented second sound; in doing so, overstrains itself, as shewn by its dilation. Now when we overstrain our voluntary muscles, tremor is a common result. Tremor, vibration, thus arises in the walls of the conus of the right ventricle, and is perceived by us as a murmur. Dr. Sansom further believes that the valves themselves may vibrate, as distinct muscular bundles penetrate far into their bases. The vibrations occur in the conus first, as this is first to feel the strain; but the area of the enfeeblement of the right ventricle may extend and involve the tricuspid orifice, producing tricuspid murmur. This idea of the vibrations originating in the muscular walls from want of due nervous tone is, so far as we know, a new and certainly an ingenious one; but we are not prepared to accept the view that the vibrations of such toneless fibres would have sufficient force to produce vibrations in the blood, or that without such fluid vibrations they would of themselves give rise to such loud murmurs. This want of tone of the ventricular muscle would be the result of combined nervous impulses, not those of the vaso motor system alone; nor do we think Dr. Sansom wishes us to understand this latter alternative.

Our author does not notice the hæmic or chemical theory of functional murmurs, and we are heartily glad to find so great an authority entirely on what may be called the physical or mechanical side. We cannot agree with his localisation of the cause outside the pulmonary artery, and think the accumulating *post mortem* evidence of the bulging, dilated, and distorted condition of this vessel goes far to prove the existence of local alterations in the size of its channel during life, especially when we remember its remarkable extensibility. But this tremulous state of the walls of the neighbouring conus may perhaps aid in intensifying the vibrations of the blood-stream itself, though surely but in very feeble degree.

"Doubling of the first sound," says Dr. Sansom, "is of but little practical significance except in association with that form of the cantering sound which is often associated with the hypertrophy of the heart co-existing with renal disease." "Many, and perhaps all, of these so-called reduplications of both first and second sounds may be ascribed to causes of tension quite independent of the normal factors of both first and second sounds." This doubling, he believes, is not due to asynchronism in the contraction of the two ventricles, which he finds difficult to credit, it being so against physiological and especially cardiographic experience, but that it is due to the extra strength with which the left auricle contracts, thus thrusting its blood more strongly into the left ventricle, and so forcing up the mitral valves sharply before the ventricle itself contracts; in fact, "to a sudden shock communicated to the ventricular content just previously to the systole, *i.e.*, in the auricular-systolic period." In proof of this view, Dr. Sansom mentions a case where the first sound was doubled, and in which, eight months later, this doubling was gone, but a presystolic murmur had appeared.

"Doubling of the second sound is to be observed in a very large proportion of the cases of mitral stenosis, but a physiological doubling in healthy people is extremely rare. In mitral stenosis this is heard almost invariably best just within the apex and along the left border of the sternum at the junction of the fourth and fifth cartilages." In the author's opinion this is not due to asynchronism in the closure of the semi-lunars, as in that case it should be best heard where these normal sounds are most audible instead of at or near the apex. He concludes therefore that this second sound doubling is due, like the doubling of the first sound, to sudden tension of the mitral flaps; "but as in mitral stenosis there is much damming up of blood, the sudden delivery of this (without an auricular contraction) immediately after systole, makes the sound produced come directly after the normal second sound." These are certainly original explanations of somewhat obscure phenomena, and, it is manifest, place in very close juxtaposition, etiologically, reduplications and the pre-systolic and post-diastolic murmurs.

This second part is noteworthy for the numerous diagrams drawn to large scale after a plan of Dr. Sansom's own, on which are depicted in graphic outline the various diagnostic signs of percussion and auscultation of many rare and illustrative cases.

The third part, consisting of 160 pages, considers very fully the results obtained by the sphygmograph and cardiograph, with a clear and able account of the pulse. The subject is indeed tempting, but space prevents our entering upon it. We will only add that this volume is a splendid evidence of vast but unpretentious labour and research, a work which no student of cardiac disease can afford to neglect, and one from which no disciple of medicine can fail to reap great benefit.

A TEXT-BOOK OF THE THEORY AND PRACTICE OF MEDICINE BY AMERICAN TEACHERS.*

THIS handsome work, which is to be completed in a second volume, is a very worthy production, honourable alike to the authors and publishers and to the medical profession in America. It may be admitted that there are in America greater facilities for the publication of such works than in Europe, that they are addressed to a larger public, and that they are not stolen by foreigners; yet it must be confessed that however much reason there may be for it, our publishers are much behind them in enterprise and courage. It is twenty years since the publication of Russell Reynolds' System of Medicine, and surely the time has come for the production of a work which should be at least equal to that in catholic character and as representative of British medicine.

The volume before us is the work of thirteen authors, who are each professors and teachers in the principal universities or medical colleges of the great American cities, New York, Boston, Philadelphia, Chicago, Baltimore, Cincinnati. Dr. Billings contributes the first chapter on Hygiene, which commences in a way which perhaps we may be pardoned for finding somewhat extraordinary. He begins by suggesting that a physician may fairly well ask why he should "try to prevent the occurrence of sickness, and thus lessen the chance of his employment;" and he proceeds gravely to give reasons, "from the business point of view," in favour of the study of modern hygiene even by practising physicians. We confess that this appears to us to be either a poor joke or a singular instance of mental hebetude, and, in any case, not what we should have expected from a writer of so much training and culture.

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* A Text-book of the Theory and Practice of Medicine by American Teachers. Edited by William Pepper, M.D., LL.D. Philadelphia: W. B. Saunders. 1893.

To regard our profession merely as a means of supporting oneself and his family, and to look upon the sickness and sufferings of mankind only as a source of possible gain, is so shocking that no one possessed of what are called the common feelings of humanity could wish to discuss the question on that basis. If our profession could ever have been reasonably suspected of fostering diseases for its own profit, it would long ago have been driven out of the civilised world by the horror and hatred of the community; and we regret that any member of our profession, and especially a teacher of some eminence, should have thought there could be any need to argue against a view of professional duty which is not only selfish and sordid, but infamous and detestable in the extreme.

The chapter on Hygiene gives a very good idea of the modern principles of sanitary science, including the study of the incidence and causation of disease.

The editor, Dr. Pepper, is the author of the next ten sections on fevers, among which we noted with interest one entitled "Mountain Fever," which does not refer to any morbid result of high altitude, but to a specific infectious fever which occurs in the Rocky Mountains. In two recorded *post mortem* examinations typical lesions of typhoid fever were present, and "there would seem to be little doubt that such is the true nature of nearly all the cases of this form of mountain fever," and if so, we may be pardoned for asking why it was thought worthy of a chapter all to itself, and why it was not dismissed with a couple of lines under the heading to which it properly belongs.

Drs. Whittaker and Thompson between them complete the subject of infectious diseases. The series is very comprehensive, and includes excellent descriptions of the less familiar conditions of foot and mouth disease, anthrax, and actinomycosis in man. These latter are illustrated by very good drawings of the specific organisms.

The last part of the volume is devoted to nervous diseases, which are divided between Drs. Horatio C. Wood and W. Osler.

We can speak in very high terms of the general merits of these articles; they are not written with encyclopædic fulness, but they convey most if not all of the knowledge that can be reasonably expected within the necessarily narrow compass of a text-book.

HOSPITAL SISTERS AND THEIR DUTIES.*

THE third edition of this admirable book, "Hospital Sisters and their Duties," is a subject of importance to all interested in the nursing routine of a ward, giving as it does a clear and simple idea of what a Sister's duties consist of. The prevailing characteristic throughout is the evident desire of the writer to impress her readers with the idea that a Ward should represent to each individual nurse and worker one big household and family of which the "Sister" is mother and head so to speak. The authoress points out strongly the desirability of a certain amount of friendship between Staff-nurse and Sister. It is certainly right to have friendly harmony in hospital wards, but one of the common mistakes in so many hospitals at the present time is the familiarity with which a "Sister" is treated by her staff-nurse. All subordinates should be able to lean upon the Sister as a friend, but once let them become familiar and the social status of a Ward is lost, and all feel equal.

The chapter on Training Probationers is excellent; it gives such a concise and clear outline of a probationer's first impression of hospital work, and at the same time shews distinctly the true position a sister should hold towards the stranger. The authoress makes it a matter of great importance that the Sister should form an exact and true opinion of the Probationer's abilities as a future nurse. The new Probationer should not be left, as so often happens, to the staff-nurse, but her powers should be carefully tested and taken account of by the Sister herself, otherwise, how can she at the end of the new Probationer's month's trial reproduce as faithfully as possible the impression that she has received, which impression is to decide the future of the stranger as far as nursing is concerned.

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* Hospital Sisters and their Duties. By E. C. E. Lückes, Matron to the London Hospital. Third Edition. London: The Scientific Press Limited. 1893.

The last pages of this work are devoted to Night Sisters and their subordinates. It is written with much purpose of mind, and if our day and night sisters and workers would read and think over Miss Lückes' kind and true view of their position to each other, how much less friction should we see in our wards, which cannot fail but to have some influence on the young nurses, who will one day hold the post of sisters themselves in other hospitals, and thus the impression received in their own training will be reflected.

A PRACTICAL TEXT-BOOK OF THE DISEASES OF WOMEN.*

THIS book appears to be steadily increasing in favour as a student's text-book, as is evinced by its having so soon reached a fourth edition.

The most important change in this edition (which is referred to in the introduction) is that the author, to some extent, retracts the opinions which he formerly held as to the relative value of tents and of Hegar's dilators. In the second edition he says that "anyone who will give the rapid method a fair trial, will be inclined to abandon the use of tents altogether;" though in a foot-note he adds: "I think tents thus prepared [that is, rendered antiseptic by being kept in an alcoholic solution of corrosive sublimate] certainly deserve a trial." He now recommends rapid dilatation for those cases in which dilatation is undertaken soon after a confinement or miscarriage, or where it is required during pregnancy. In other cases he prefers to use specially prepared laminaria tents, following up, if need be, by Hegar's dilators. In our own experience the latter plan has proved very successful, the preliminary use of a tent much simplifying subsequent dilatation by Hegar's dilators; but we would be inclined to exclude cases in which dilatation is required during pregnancy from the list of those suitable for Hegar's dilators, as we have found special disposition to tearing of the cervix and consequent hæmorrhage under these circumstances.

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* A Practical Text-Book of the Diseases of Women. By Arthur H. N, Lewers, M.D. Fourth edition. London: H. K. Lewis.

If we would find any fault with the book, it is that the subjects are not all treated with equal fulness. Thus, while 22 pages are devoted to the operation of supra-vaginal amputation of the cervix, all that is said about the treatment of vesico-vaginal fistula is: "Vesico-vaginal fistula must be operated on with a view to closing the fistula."

The headings of the different subjects are set out very distinctly; and the "causes," "symptoms," etc., are arranged in tabulated form. The latter feature is one of the points which make this book an acceptable one to students.

THE TREATMENT OF CONSTITUTIONAL SYPHILIS.*

ALTHOUGH there is nothing particularly new in this work it forms a valuable record of the opinions formed by a critical observer and logical thinker during twenty-five years of practice, including experience at both Aix-la-Chapelle and Wiesbaden. The various methods of treatment in vogue are examined, and an implied protest against superstition in treatment runs through the book. The pages on the best method of using mercury are thoughtful and valuable; inunction is unhesitatingly selected as the best way of securing the maximum dosage and benefit of the drug, while like his continental confrères the author holds strongly to the view that mercurial salivation is secondary to stomatitis. He consequently insists on the systematic preventive treatment of the latter condition. By this means and by the avoidance of constipation which has considerable influence in determining mercurial diarrhœa, the effort is made to secure continuity and efficiency of treatment by the drug. With the same view too, milk, so much insisted on at Aix, is interdicted at Wiesbaden because of its constipating effect. On page 12 a curious impression is conveyed by the unusual use of the word "immediate" in relation to sequence of events instead of in its more modern meaning implying relation to time. Two uncorrected errors occur in the printing: on page 28, line 2, "sulphate" should read "sulphuret;" and on page 63, line 4, "6·0 per cent." should read "0·6 per cent."

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* The Treatment of Constitutional Syphilis. By Oswald Ziemssen, M.D, London: H. K. Lewis. 1893.

As a lucid review of the present position with regard to the treatment of syphilis the book will well repay the careful perusal and attention of practitioners of medicine. There is no question that our English methods of treatment of syphilis are generally inferior to those practised at continental Spas, and the publication of such books as this one cannot but assist in a desirable levelling-up of our methods.

WHEN MAY SYPHILITICS MARRY?*

THE special experience of such a careful observer as Schuster renders his views upon syphilis and marriage of great practical value, and his pamplet, after briefly reviewing the opinions of many well-known writers on syphilis, pointedly and briefly states his own creed. Although obviously without such an intention the volume is a strong testimony to the acknowledged pre-eminent value of the Aix-la-Chapelle treatment. Time, of course, is a remedy for which the physican has no substitute in syphilis, but at Aachen the tedium of long treatment is greatly

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[*] When may Syphilitics Marry? By Schuster; translated by Dr. C. Renner. London: F. J. Rebman. 1893.

reduced. The author says, "If a patient with early relapse of syphilis asks me about marriage, I reply that he may marry without fear if, after the disappearance of all symptoms, he take two courses of treatment with intervals of freedom from five to ten months." Now as the course of treatment at Aix is about thirty to fifty days the practical testimony to its value is apparent. From the position that the mother often derives her syphilis through the ovum syphilised by the father (*i.e.* through conception) the author arrives at the original and practical suggestion that a married man suffering from latent or manifest syphilis should take care, especially during the first year, to avoid *fruitful* connection. In the short space of thirty-five pages we have an authoritative exposition, by an able master, of a subject important alike to the family and the race.

LECTURES ON SANITARY LAW.*

THIS work contains twelve lectures on Sanitary Law delivered by Professor Wynter Blyth at the College of State Medicine, and may be considered as chiefly intended for medical men connected with the Sanitary Service. There can be no doubt that this part of public health work is as a rule the most distasteful to medical men, and thanks therefore are due to Mr. Blyth for treating the subject in a different way to that adopted by other authors, and making a comprehension of the various statutes not only easier but at the same time more interesting. The first lecture is devoted to "Sanitary Districts and Authorities," while Lecture ii. treats of Nuisance both under the Public Health Act and also at Common Law. The other lectures treat with the subjects of Sewerage and Drainage, Water, Sanitary Appliances, Statutory provisions with regard to the prevention of disease, The Law in Districts which have adopted the Infectious Diseases Notification and Prevention

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* Lectures on Sanitary Law. By A. Wynter Blyth, M.R.C.S. Eng., L.S.A. Lond., Barrister at Law and Professor of Hygiene, College of State Medicine. London: Macmillan and Co.

Acts, Port Sanitary Law, The Housing of the Working Classes Act 1890, Canal Boats, and Metropolitan Sanitary Law.

In an Appendix Mr. Blyth gives specimens of existing bye laws as to certain offensive trades, and also some small Acts having a bearing on public health, viz.: The Sale of Food and Drugs Act 1875 and 9, the Margarine Act 1887, and the Horseflesh Act.

It is obvious that this work will be of the greatest value to all Sanitary Officers, and its value is much enhanced owing to the Collection of Cases (many of them quite recent) bearing on the various points.

DOMESTIC MEDICINE AND HYGIENE.*

According to the preface, this book is intended for the use of those who are unable to obtain medical aid in case of illness, and the author therefore aims at giving a short account of the principal diseases in plain and untechnical language. We can understand that such a work might, under certain circumstances, be of great value; but we cannot help thinking that Dr. Russell's book goes much too far, and contains material which can only serve to confuse those for whom it is written. The fact that it has reached a third edition is, however, evidence of its appreciation.

Local.

Dr. R. Saundby, Professor of Medicine in Mason College, has been appointed Examiner in Medicine to the English Conjoint Board. This is the first time a provincial physician has held this office, so that it is a step gained upon which the provinces generally, as well as our own medical school in particular, may be congratulated.

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* Domestic Medicine and Hygiene. By Dr. W. J. Russell, M.B. London: W. H. Everett and Son. 1893.

New Inventions, Drugs, etc.

NESTLÉ'S SWISS MILK.—This excellent preparation has been so long before the public that it demands no further praise from us, but we may remind our readers, in view of the large amount of preventible disease due to milk infection, and the unsatisfactory milk supply at many watering places, that they will do well at this season of the year, when so many families are going to the coast, to bear in mind the utility and safety of this best of all substitutes for pure natural milk.

New Books, etc., Received.

A Contribution to the Pathology of the Vermiform Appendix. By T. N. KELYNACK, M.D., Pathologist to the Manchester Royal Infirmary, Demonstrator and Assistant Lecturer in Pathology in the Owen College. With Illustrations and Bibliography. London : H. K. Lewis. 1893.

Tooth Extraction ; a Manual on the Proper Mode of Extracting Teeth. By JOHN GORHAM, M.R.C.S. Fourth Edition. London : H. K. Lewis.

The Physiologists' Note Book ; a Summary of the present state of Physiological Science for the use of Students. By ALEX. HILL, M.A., M.D., Master of Downing College, Cambridge. With 36 plates and blank pages for MS. notes. London : Charles Griffin and Co.

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BIRMINGHAM MEDICAL REVIEW.
SEPTEMBER, 1893.

ORIGINAL COMMUNICATIONS.

THE TREATMENT OF PERFORATED GASTRIC ULCER, WITH A REPORT OF A SUCCESSFUL CASE.*

BY GILBERT BARLING, M.B., B.S., F.R.C.S.
PROFESSOR OF SURGERY IN MASON COLLEGE.
SURGEON TO THE GENERAL HOSPITAL, BIRMINGHAM.

THE surgical treatment of gastric ulcer which has perforated has only in recent times come within the region of accomplished fact. In the face of the remarkable results obtained in other lesions within the abdomen, it was inevitable that this very fatal accident should eventually offer a new and probably successful field for that restless energy of the surgeon which is supposed to be characteristic of him in the present day.

My own interest in the subject was first excited by a case which I was called to see in the General Hospital by my colleague, Dr. Simon, in July, 1891. A second case of perforation occurred in the practice of the same physician about two months later, and this also came into my hands for surgical treatment. Both of these cases have already been published, but it is desirable that I should bring them before you to-day, as well as my third case, which I now record for the first time. The details of the cases are as follow:—

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* Read at a meeting of the Birmingham and Midland Counties Branch of the British Medical Association, October 13th, 1892.

Case 1. *Latent Gastric Ulcer, perforating; acute peritonitis; abdominal section and drainage; autopsy.*—A girl, aged 22, was admitted to the General Hospital July 16th, 1891, in the afternoon. About noon on that day she was in her usual health, and at that time, stooping down to pick up something from the floor, was suddenly seized with violent pain in the lower part of the abdomen, was unable to stand upright, felt very faint, and, after drinking some brandy, vomited. The pain and vomiting continued until admission. The patient had breakfasted on bread and butter at 8-30 a.m. ; the bowels had acted at 10 30 a.m.; the period was due in a few days. The previous history shewed that she had never been very robust, but had been in her usual health until her present attack, except that for the past fortnight she had suffered from "the wind."

When admitted, the girl seemed considerably though not extremely collapsed; her face was white, expression anxious; respiration shallow and quick; pulse about 100, fairly full and compressible; she was vomiting. She lay on her back with her knees drawn up, complaining of shooting pains below the level of the umbilicus. On examining the abdomen there was no distension, the muscles were rigid ; superficial examination caused no pain, but any attempt at deep palpation shewed the presence of marked general tenderness, especially at the lower part, but no tumour could be found. The vomit consisted of mucus with small quantities of food. The rectum contained some fæces. Two enemata were given, but were retained. Two hours later the abdomen was a little distended, the pulse was harder and sharper; there appeared to be some ill-defined dulness in the left flank; the vomiting was quieter, and was partly replaced by hiccough. The general appearance had altered for the worse. Peritonitis from perforation was diagnosed.

Six hours after the sudden seizure the abdomen was opened in the middle line below the umbilicus, when a considerable quantity of thin sero-purulent fluid escaped, in all, probably from two to three pints. That in the pelvis was more distinctly purulent than elsewhere; but there were no particles of food or fæces anywhere. A careful examination was made of the small and large intestine, especially in the region of the cæcum, and of the tubes and ovaries, but there was nothing to account for the attack. The only abnormal condition noted, beyond the intense peritonitis, was enlargement of a chain of glands in the mesentery, but these did not appear to be softened. As no cause appeared for the peritonitis, and the girl had been on the operating table for some time and was becoming more depressed, the cavity was thoroughly washed out and a glass drain inserted into the pelvis.

After the operation, only sufficient fluid was given by the mouth to moisten the tongue. A saline purgative was administered, also another enema with turpentine; but no action of the bowels took place, and the patient steadily went down hill until her death 24 hours after the operation.

The autopsy shewed a perforating gastric ulcer, circular, one-third of an inch in diameter, situated on the anterior wall of the stomach rather nearer to the cardiac than the pyloric end. The enlarged glands felt at the time of the operation were in the mesentery of the small intestine, and appeared to be calcified tubercle.

Case 2. *Perforating Gastric Ulcer; acute peritonitis; abdominal section; suture of the ulcer; drainage; death; autopsy* — A girl, aged 20, was admitted to the General Hospital on Monday, October 12th, 1891, under the care of Dr. Simon, with a history of indigestion of some years' duration, and of a sudden severe pain in the left upper part of the abdomen, with moderate sickness on Saturday, October 10th. She did not feel very ill when she came to the hospital, had no fever, and was not sick, but she was admitted because she had had this acute attack of pain two days before, and said that three years previously she had been under treatment for gastric ulcer, although there had never been any hæmatemesis. She was ordered a mixture of bismuth and morphine, and passed a comfortable night. When seen on the following morning (the 13th) she was found to be rather collapsed, eyes somewhat sunken, and pulse 126, feeble and compressible. The abdomen was slightly distended, tympanitic, and very tender on palpation, especially in the epigastrium and the right hypochondrium; the abdominal muscles were tense, and the patient resented examination. There was no sickness, and, though appetite was lost, there was no complaint of pain after drinking milk and water, to which the diet was restricted.

With a view of relieving the distension, 15 minim doses of ol. terebinth. were ordered to be given every four hours. About 3 a.m. that night she complained greatly of pain, began to vomit a green bilious fluid, and became much more collapsed. When seen in the morning, it became evident that her condition was critical; the pulse was 150 and wiry, the eyes were sunken, and the face very anxious. The abdomen was more distended than before, and very tender. Whatever the cause, it was recognised that she was suffering from peritonitis. It seemed, after consultation, to be reasonable to associate her condition with the sudden onset of the pain four days earlier, and to be imperative, if relief were to be obtained, to investigate its cause by abdominal section.

Operation.—October 14th, four days after the commencement of the illness. The presence of a gastric ulcer which had perforated being strongly suspected, the abdomen was opened by an incision in the middle line above the umbilicus, and this was eventually extended to within an inch and a half of the ensiform cartilage. The incision revealed slight peritonitis of the parts first exposed—namely, the lower margin of the stomach and the upper margin of the transverse colon, and enlargement of the wound upwards discovered a collection of semi-purulent fluid between the liver and the stomach. This being cleared away, a finger was passed over the anterior surface of the stomach, and a perforation with indurated margins was felt about the middle of the organ, from which a quantity of watery fluid escaped. Several ounces having been withdrawn from the stomach by a piece of tubing, with the utmost difficulty the organ was drawn down so that the perforation could be seen.

It was found to be circular, and about half an inch in diameter. Five points of silk suture on Lembert's method were inserted, the tissues of the stomach wall bearing the strain on them well; but the position of the perforation entirely within the abdomen, in close proximity to the under surface of the liver, and the considerable distension of the abdomen, made the suturing extremely difficult. The abdominal cavity was now flushed with hot water, and a Keith's tube placed between the liver and the stomach, where the most advanced inflammatory mischief had been found. Nutriment was ordered "per rectum" only, the lips being simply moistened with water occasionally. There was a good deal of collapse by the time the operation was ended; and though for some hours there was an attempt at improvement, the symptoms of advancing peritonitis prevailed, and the patient died 30 hours after the operation.

At the necropsy well-marked peritonitis was found, especially in and around the portal fissures, and about a pint of thin purulent fluid escaped from the cavity of the abdomen and pelvis. The perforation on the anterior surface of the stomach, about midway between the extremities and somewhat nearer the lesser than the greater curvature, was effectively closed by the sutures, and adhesions existed between the opposed peritoneal margins. A second ulcer was found on the posterior wall of the stomach opposite to the one sutured; this had nearly perforated.

Case 3. *Leakage from a Gastric Ulcer; abdominal section three weeks later; drainage; recovery.*—This case occurred in private, and for the notes previous to my seeing the patient I am much indebted to Dr. Hugh Snell.

A. M, aged 29, domestic servant, was on May 8th, 1892, seized with severe abdominal pains, faintness, and vomiting.

Previous history.—Always an anæmic girl, she had two or three years previously suffered from habitual pain at the epigastrium after meals; vomiting was very common, and the pain was always relieved by vomiting. There had at no time been either hæmatemesis or melæna. The pain after food was constantly present, so the patient got into the habit of taking very little. These symptoms subsided and did not recur. On the evening of May 7th she had a heavy and indigestible meal, and on May 8th she took her ordinary breakfast. Within an hour of this she felt something "give way inside her abdomen," and an acute pain suddenly came on with a feeling of faintness. When first seen by Dr. Snell the patient was lying in bed with her knees drawn up and looking very anæmic, as though suffering from internal hæmorrhage. Respiration was hurried and shallow, the pulse was nearly 100, and the temperature was normal. The pain at this time was felt all over the abdomen, but was most marked in the left hypochondrium; the abdominal walls were rigid, and there was tenderness over the whole abdomen; there was no dulness on percussion.

Dr. Snell made a provisional diagnosis of perforation of gastric ulcer, prohibited feeding by the mouth, gave small doses of morphia, and applied hot fomentations. Under this treatment the patient improved, and the improvement continued during the next day or two.

May 11th. Rectal feeding had to be stopped owing to the irritable condition of that cavity. The abdomen presented no abnormal physical signs, and it was not tender. The only complaint was of pain in the left lumbar region on sudden movement. With an increasing allowance of food by the mouth all went well until May 17th, when the patient complained of pain in the left hypochondrium and lumbar regions. There was tenderness here and increased resistance, with some impairment of resonance.

May 19th. The resistance had become more distinct, and a rounded swelling could be felt in the region above indicated. The temperature was 102°. The history up to May 27th was one of improvement; the fever disappeared, so also the pain and tenderness, and the swelling lessened. On this day, however, the breathing became hurried, and the patient had a restless night.

May 28th. At 11 a.m. the respirations were 40 per minute, pulse 140, temperature 103. The mass in the left hypochondrium was not so easily felt as on the day before.

Later on this day I saw the patient myself. Her pulse was 160, small, and of low tension; the temperature was 103°; the respirations were 60. The swelling above mentioned could be easily felt but not easily defined. It could be palpated bimanually, but it was too tender to allow of careful investigation in this way. The patient looked extremely ill. I fully concurred in the diagnosis made by Dr. Snell, of leakage from a gastric ulcer, three weeks previously. The question was, What produced the acute symptoms? The dyspnœa suggested that an abscess, formed at the site of leaking, had opened into the thoracic cavity, but the physical signs did not support this belief. Another explanation, and probably the true one, was that the severe constitutional disturbance was a septicæmic condition, due to poisoning from the inflammatory mass which could be palpated in the abdomen.

The condition was so certainly fatal that I attempted to relieve the patient, despite the fact that death seemed likely to follow immediately on operation. I therefore made an incision directly on to the swelling, about the left semi-lunar line, and on opening the peritoneum, found the omentum adherent After separating this, a mass of hard granulation tissue was found, and the finger, breaking this down, passed backwards and upwards in a direction which would lead behind the stomach, and almost to where it would be in contact with the spleen. At the bottom of this, a small abscess cavity was found containing not more than a couple of drachms of pus of an offensive odour. About ten minutes had been occupied so far, and the patient's condition was so bad that it was imperative to get her back to bed if she were not to die on the table. A glass drain, five inches long, was passed into the wound, stitches applied, and the girl placed quickly in bed I left her, expecting that she would die in at the longest an hour, but was gratified to hear of her well-doing in the morning.

During the next few days the history was one of slow improvement. The glass tube was emptied occasionally of a drachm of thin offensive purulent matter, and the strength increased.

On May 31st a sharp attack of phlebitis supervened in the left lower extremity. This was associated with a good deal of constitutional disturbance, and occasionally with faintness, but gradually the trouble subsided.

June 4th. The discharge being small in amount, the glass tube was replaced by a rubber one. The pulse now came down to something below 100, and a little food was allowed by the stomach. Shortly afterwards there was another attack of phlebitis, in the right leg, with sharp general disturbance. This however subsided, as did the other. For some weeks a thin purulent discharge, of offensive smell, escaped from the tube, which was not finally removed until July 11th; and on August 2nd the wound had healed.

On August 7th the patient was allowed to get up, and she is now, as you see her to-day, in good health—indeed better than she has been for years.

The record of these three cases together is so instructive that I believe you will pardon me for having brought them before you at some length. They emphasise many points. First of all, that a patient may die of perforation without anything in the previous history to suggest the presence of an ulcer of the stomach—that is, the ulcer is latent. In two cases the history points to a period of quiescence in the symptoms for some time before perforation took place. Then it will be noticed that in the first two cases the perforating ulcer was on the anterior wall of the stomach—a point of some importance in the treatment, because here the ulcer will often be accessible for suturing. The general impression appears to be that most of the perforations are to be found on the posterior wall, or, at all events, not on the anterior; but I much doubt if this would be borne out by statistics. Again, these three cases indicate the class of patient most subject to the accident of perforation; all of them were young women, and all taken from the same social class.

One of the most important points they illustrate, however, is that cases of perforation may vary greatly in acuteness and intensity. Nothing could well be more acute or intense than the peritonitis found in Case 1, in which the abdomen was opened six hours after the perforation had taken place. In Case 2, on the contrary, the escaped stomach contents were evidently circumscribed for a time between the liver and the stomach, and the peritonitis was of a milder degree and more limited in area, so much so that perforation was hardly suspected by those who first saw the patient. In the third case the escape of stomach contents was so limited that the peritonitis was quite mild, and subsided almost entirely until the twentieth day, when the acute symptoms developed.

I should like, then, to emphasise the fact that though some patients die almost outright from the shock of perforation, and a majority in from 24 to 36 hours from an intense peritonitis, yet in a few cases the symptoms are sub-acute, or even subside for a time, to be followed by an acute extension which will prove rapidly fatal.

What is the fate of a patient with an ulcer of the stomach which has perforated if surgical measures are not resorted to? I have no statistics available to tell; but from a careful scrutiny of numerous cases, I do not think I exaggerate the mortality when I say that it is as great as 95 per cent., or greater. In medical literature every now and then one comes across a case of recovery recorded, and though not all of these are conclusive, yet there are sufficient cases submitted to autopsy to demonstrate the possibility of recovery by the ordinary treatment for peritonitis and keeping the stomach empty. It is necessary to realise the fearful mortality of perforation, because failure will often follow on surgical interference, and it may excite regret that the disease was not treated by medical means only. The right way to view the matter is to regard each patient who recovers after operation as one saved from almost certain death.

Before speaking of treatment it is advisable to see what it is we may be called on to treat. From a scrutiny of my own and numerous other cases, it is clear that we may have at least three conditions present:—1, A very acute and widely-spread peritonitis; 2, a circumscribed peritonitis, which may or may not eventually become diffused; 3, a circumscribed peritonitis which is mild in its commencement, which eventually suppurates and gives rise either to an acute and fatal peritonitis or perforates into an adjacent cavity, as the thorax or colon. The diagnosis of perforation of the stomach is, as a rule, not difficult. The patient is commonly a young woman, oftenest of the servant class, or an elderly male. There is very generally a history of indigestion, which has given rise to the suspicion of gastric ulcer even if a positive diagnosis has not been made, but the symptoms may have been in abeyance for a time before perforation takes place. The symptoms of perforation are generally unmistakable. The patient complains of intense or, at all events, of very severe pain in the abdomen, this generally after a full meal or after making some exertion. The pain is widespread, and collapse sometimes of a profound character follows. The pain may later be localised to the upper part of the abdomen or to the left hypochondrium. Vomiting sets in, the pulse is quick and small, the belly becomes rigid and tender. Then we have the usual phenomena of a very acute peritonitis if the patient survive the immediate shock—abdominal distension, rapid breathing and pulse, the pinched facial look, the lividity of the lips and extremities. An occasional sign which has been made much of is the diminution—in some cases the disappearance—of liver dulness, which may be due either to the presence of free gas in the peritoneal cavity, from the stomach, or to a distended coil of bowel getting in front of the liver.

A diagnosis, then, can usually be made; but occasionally the progress of the case appears to throw doubt upon it. This was so in my third case; and, curiously enough, a somewhat similar case occurred in an adjacent house, in which my friend Mr. Arthur Payne diagnosed perforation. A girl with symptoms of gastric ulcer was, after a period of quiescence, seized with extreme pain in the abdomen, collapse, tenderness on pressure, and vomiting. With morphia and complete rest for the stomach, the symptoms so completely subsided that the diagnosis was much doubted; but the following day an attack of retching brought on a further leakage from the stomach, and the patient speedily died, the conditions I have mentioned being substantiated by autopsy.

A diagnosis of perforation having been made, operation should follow as speedily upon it as circumstances will allow. It is not possible to tell in the early hours whether the escape of stomach contents is much or little, whether the perforation is on the anterior or posterior wall of the stomach, or whether there is any probability of the extravasated food, etc., becoming localised. Under these circumstances, and recognising the terrible mortality of perforation, it seems to me that *early operation* is urgently called for always when perforation has been diagnosed.

Operation.—With the limited experience at present available, it is undesirable that one should speak too dogmatically as to the exact lines to be followed, but the following are the main outlines. The abdomen should be opened in the middle line above the umbilicus, but not too near the costal margin. Positive evidence may at once be found of perforation in the presence of free gas or food. The area between the stomach and liver should be examined with care, so that any localised collection here should, if possible, be prevented from soiling the more distant parts of the cavity. Any extravasated matter having been removed, the perforation should be sought for on the anterior wall, especially towards the lesser curvature, where I believe it will most commonly be found to exist. A perforation being found here, if accessible, should be sutured, the sutures being applied with the stomach outside the peritoneal cavity, if this can be managed; but it will not always be possible. It will be wise to first pass a piece of drainage tube into the hole in the stomach, and run off any fluid the organ contains. In my second case, although no food had been administered for some time by the mouth, there were several ounces of thin, almost watery, fluid in the stomach, just like the material so constantly vomited in peritonitis, and which kept leaking from the perforation until it was completely removed by the tube. The most convenient form of suture to use is probably Lembert's; but if the hole to be closed cannot be brought outside the abdomen, the operator will find he has a difficult task before him. It has been recommended that the edge of the ulcer should be pared before suturing. This was not necessary in my second case, the only one I have sutured, for the edges of the ulcer were so tough as to hold the sutures well. If it were found that the edge was too friable, excision of it might be advisable; but even then the case would perhaps be met better by an extensive infolding of the margin, which could be done easily and without risk of kinking in the stomach. The objection to excising the margin is that it takes time to effect, and one of the most important factors militating against recovery in cases of this kind is prolonged exposure on the operating table. If the ulcer cannot be sutured, it may possibly be stitched to the lower angle of the abdominal incision. If the perforation be inaccessible for suturing and cannot be brought up to the incision, the only resource left to the surgeon is drainage with a tube leading directly to the point of leakage. Though this falls short of the more complete proceeding, yet drainage has been found so efficient a protection against the extravasation of other fluids—as, for instance, bile—that one cannot but feel hopeful of it in this condition. Whether suturing be possible or not, it is of the greatest importance that the abdominal cavity should be washed out and thoroughly flushed with hot water. When the flushing out has been done, the drain should be placed *in situ* close to the perforation whether it has been sutured or not. Something more than this is necessary, however. A second tube should be inserted into the abdomen just above the pubes, otherwise the drainage of the peritoneal cavity will be very imperfect, and a considerable quantity of fluid will collect in the pelvis and greatly interfere with a successful issue. I cannot but think that this accumulation interfered with the well-doing of my second case.

In the more chronic cases, such as my third, the treatment should be different. An incision directly on to any inflammatory mass would be the right procedure, and in the event of pus or other fluid being found, this should be evacuated with the greatest care, to prevent fouling of the general peritoneal cavity. For this reason I should prefer to trust to sponging rather than to flushing for cleansing purposes, as the irrigation may carry infective particles to more distant parts, whence they cannot escape again, but may set up fresh mischief. A drain to the bottom of the abscess cavity is then required, and all that can wisely be done has been done. To search for the perforation, with a view to closing it, would be useless and dangerous.

The third case I have described to you this afternoon is the most successful of the kind I know of, though it is quite possible there are others of which I am not aware. However this may be, I hope I have shewn that this hitherto fatal accident—perforation of gastric ulcer—offers an attractive field for the extension of successful surgery. For success, two things are necessary—***early diagnosis*** by those who first see the case, and ***operation*** following on this as early as possible. Here, hours are of as much importance as days in other conditions; in fact, there is hardly any emergency more urgent in the whole of surgery.

SOME POINTS IN THE OPERATIVE TREATMENT OF SEVERE HARE-LIP.*

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PERHAPS there is no plastic operation that is more satisfactory or successful, so far as union is concerned, than one for a simple case of hare-lip; and, indeed, with care and attention to certain details, after a sufficient lapse of time few traces of the original malformation should be discernible. To the practised eye there are often defects even in the most successful cases. A slight notch in the lip, an irregular muco-cutaneous line, or an unsightly cicatrix, are overlooked by the friends of the patient in consideration of the enormous general improvement, though they remind the surgeon that something more might have been done to attain perfection.

Wide deviation of the sides of the cleft, either from its extension through the nostril to the palate in single, or from abnormalities of the premaxillary or maxillary bones in double hare-lip, constitute most of the severe cases; and the object of the present paper is to bring forward some alterations in the treatment of such, which, in the opinion of the author, make the operation in severe cases as safe and as successful as in the more simple varieties.

I have been accustomed to consider the following as the points of a well-performed operation for hare-lip:—

1. Symmetry of the nostrils.
2. A perfect muco-cutaneous margin.
3. Absence of any notch either at the nostril or the lip.
4. As few cicatricial marks as possible.

The last three apply equally to slight and severe cases; the first, the most important, to severe cases only; for it is only in severe cases—in which complete cleft palate is present, or, in the extreme cases of double hare-lip, cleft palate, and projection of premaxillary bones—that the nostril usually requires special treatment.

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I need hardly say that a case of double hare-lip is not necessarily a severe one. There are many in which a double cleft not reaching to the nostrils, with plenty of lip tissue, is easier to treat than an ordinary one of single hare-lip, so that my remarks must be understood to refer to cases in which the cleft is unusually wide either in the single or double varieties.

Nearly all cases of double hare-lip with projecting intermaxillary bones are severe. There is however one variety which may be regarded as simple—that in which there is no fissure in the palate, the maxillæ meeting completely behind the premaxillary bones. I have only seen one case of this kind, and I operated on it with excellent results. I think this is the only condition in which there can be no question as to the propriety of removing the premaxillary bones. In nearly all other cases there would be differences of opinion—I might say legitimate differences. Years ago, when I was more influenced by what I read of the work of others than by the results of what I saw or did myself, I was firmly convinced that the premaxillary bones should never be sacrificed, and in this belief performed many recognised operations, such as pressing back, removing a wedge from the septum, or, better, a quadrilateral piece. I have had the opportunity of keeping such cases under observation for years after, and am convinced that only in a small proportion is there any advantage. but that a better result is obtained by removing the projecting premaxillary bones more or less completely. If they are retained and pressed back, they rarely seem to become fixed ; the teeth are ill-developed and almost useless, and the subsequent closure of the palate by operation is rendered more difficult.

I would not go so far as to say that the premaxillary bones should always be removed, but in the majority of cases removal gives more satisfactory results than retention, and where the projection is small and near the tip of the nose, there is not the least advantage in retaining it.

The most favourable cases for retention are those in which the mass does not project far forward and is a little wider than the opening between the maxilla behind it, so that when the opposing sides are refreshed, it can be pressed back and held tightly in the fissure without depressing the apex of the nose too much, for it must not be forgotten that every attempt to press the projection back produces more or less flattening of the nose according to the distance it has to be pressed back. With these exceptions, I am convinced that more or less complete removal of the premaxillary bones will give the most satisfactory result. The amount removed will depend on the individual case—the nearer the mass is to the tip of the nose, the more completely must it be removed. When the projection is not very far forward, but too large to fit into the cleft, its size may be reduced by opening the teeth capsules and turning out the teeth, as performed by Sir William Fergusson. By this proceeding the flattened and underhung appearance of the upper lip, which sometimes follows complete removal, may be avoided. In every case every bit of skin, and as much of the mucous membrane as possible, should be detached from the premaxillary mass before cutting it away. The bit of skin is required for the columna nasi, and the mucous membrane to cover the cut surface of the bone.

I have spoken of removal of the premaxillary process as though it were the first step in the operation for severe hare-lip, but this is not always the case. It may be necessary to retain it until after the formation of the nostrils, as I shall presently shew. I look upon the formation of the nostril in severe hare-lip as the most important step in the operation. Properly performed, it adds enormously to the success of the operation, and its performance reduces even the worst cases to simple ones. If the opportunity, by making it the first step, is lost, it is difficult to alter afterwards. Almost any irregularity in the lip—as a notch, an uneven muco-cutaneous margin, or even an adherent or unsightly cicatrix—may be improved or cured; but if the nostril is not properly formed at first, it is difficult, if not impossible, to make it right afterwards.

Before I proceed to describe the mode of treatment of the nostril, permit me to draw your attention for a moment to the anatomy of the cartilage of the aperture of the nose, as a correct understanding of it explains the *modus operandi* of the proceeding. The cartilage of the aperture is an incomplete oval ring. The upper part is bent down along the side of the columna nasi. The outer part is wider, and forms the outer part of the side of the nostril, whilst the lower portion is continued by two or three small separate pieces of cartilage round the floor of the nostril to the base of the column. In severe cases of hare-lip this lower part of the cartilage of the aperture is opened out and usually closely attached to the projecting anterior point of the maxilla. The object we should have in view is to restore the margin of the nasal aperture by bringing up the termination of the cartilage to the base of the column, and thus form a floor margin to the nostril. The following method I have for some years adopted with uniformly satisfactory results. I will first describe it as performed on a case of single but severe hare-lip, and hope that, with the assistance of the diagram, it will be quite clear.

The cheek and nostril are very freely separated from the facial bones. The lip is pierced with a fine scalpel, the point of which is entered just below the inferior curve of the cartilage of the aperture (see Fig. 1), and the blade directed downwards and slightly inwards, so as to cut a small flap which must include the termination of the cartilage of the aperture. When this flap is turned upwards and inwards, two raw surfaces are produced, one of the flap itself, and the other of the lip from which it was cut (see Fig. 2). Two corresponding surfaces are made—one on the outer side of the base of the column, the other, below and continuous with it, from the upper part of the inner margin of the cleft. The flap and corresponding surfaces are applied to one another and stitched (Fig. 3). I used formerly to complete the operation by paring the remainder of the cleft as might be required, but now I usually allow an interval to elapse before completing the cure. The case is reduced to one of simple hare-lip, which can easily be treated by ordinary means.

I have been much struck with the advantages of dividing the operation in severe cases into stages. There is less hæmor-

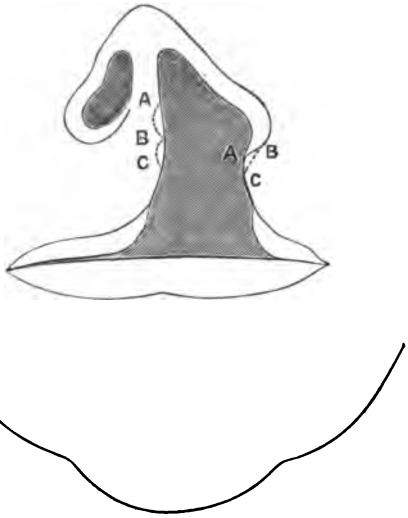

Fig. 1.

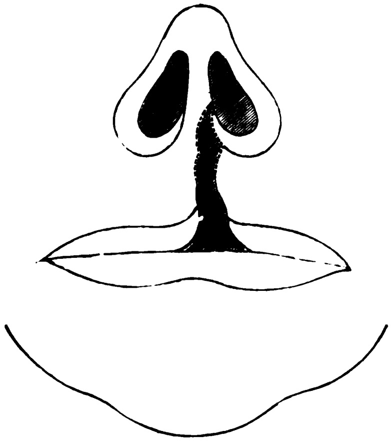

Fig. 2.

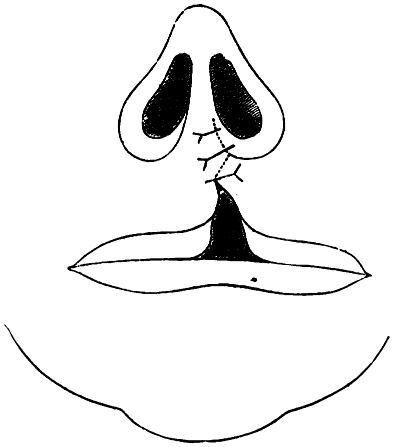

Fig. 3.

Fig. 1. Diagram of a case of severe single Hare-lip. The dotted lines shew the incisions required for the formation of the nostril.—Fig. 2 shews the flap turned up to form the nostril.—Fig. 3 shews the nostril stitched, and the first stage of the operation completed.

rhage and less liability to suffocation, and after the nostril is healed, it is easier to deal with the cleft satisfactorily. In

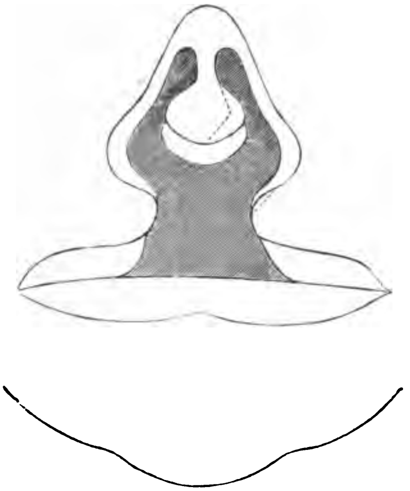

Fig. 4.

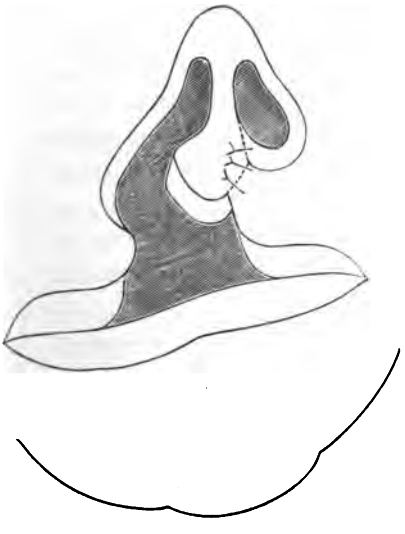

Fig. 5.

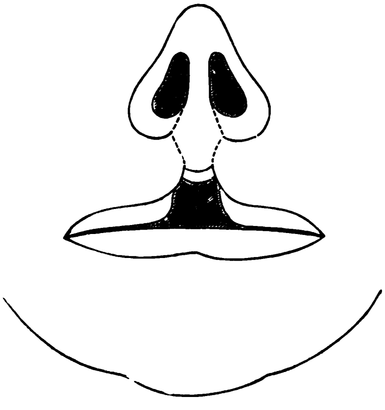

Fig. 6.

Fig. 4. Diagram of a severe case of double Hare-lip with projecting pre-maxillary bones. The dotted lines shew the incisions for the first stage in the operation.—Fig 5. The first stage completed.—Fig. 6. The second stage completed.

performing this part of the operation, *very free separation of the lip and cheek from the facial bones is necessary*, so as to avoid all tension on the sutures. The hæmorrhage, which is usually pretty free, can be best controlled by placing a double layer of damp lint between the divided surfaces for a few minutes. It usually subsides quickly. In severe double hare-lip a similar method is adopted, the lower margin of each nostril being turned up and attached to the columna, or, in cases of premaxillary projection, to the side of the bit of skin which covers it, and which must be retained in all cases to assist in forming the column, which is usually short. A little consideration of each case will shew how to plan the refreshed surfaces.

It will be seen that a severe double hare-lip would be done in three stages—one for each nostril and one for the lip itself—whilst a single case would be completed in two stages.

The premaxillary projection, if present, must be treated according to the principles mentioned above. Unless very near the tip of the nose, it need not be reduced in size or removed until the operation on both nostrils is completed.

I have as yet said nothing about the manner of treating the lip after the nostrils have been formed by the first stage or stages of the operation. By these proceedings the case has been reduced to one of ordinary simplicity, and it would lengthen my paper too much were I to describe various devices for the avoidance of a notch in the margin of the lip, an irregular muco-cutaneous line, and especially an irregular or adherent cicatrix. I believe all these objects are facilitated by proceedings such as I have described.

In one very severe case—some years ago—of double hare-lip, wide fissure of the palate, and a small ill-developed premaxillary process hanging from the tip of the nose by a slender tab of skin, I found, after removing the premaxillary bones, I had not enough skin to form a column. I united the lip with some difficulty, as the tension was too great to be relieved by free separation. I afterwards formed a column from the united lip by making a horizontal incision near its upper margin, dividing it in the centre, and uniting its two halves with the small triangular tip of skin and with one another. The result was satisfactory, but would have been better I think if I had adopted the mode of operation I have described.

In conclusion, I would only say that the operation of severe hare-lip may well tax the resources and ingenuity of any surgeon, and he should always endeavour, as far as possible, to leave no traces of his handiwork, and remember that in this, perhaps more than any other, surgical proceeding his motto should be—

"Ars est celare artem."

REPORTS OF CASES.

INJURY TO CERVICAL SPINE; HÆMATOMYELIA WITH PARALYSIS; RECOVERY PRACTICALLY COMPLETE.

UNDER THE CARE OF MR. BARLING AT THE GENERAL HOSPITAL.

A. F., male, aged 27, was admitted to the General Hospital on August 20th, 1891, having fallen off a railway engine a distance of 10 to 12 feet, striking the right side of his neck and head. He was suffering from considerable shock and from concussion, and the neck was much swollen on the right side. Loss of power was almost complete in the right upper extremity, only slight movements of flexion and extension at the elbow joint being possible. Sensation in the arms appeared normal. There was general weakness of the right lower extremity, but no absolute paralysis of any muscles. Sensation was normal in the left lower extremity, but in the right, although contact was felt, there was no sense of pain from the use of a pin. Reflexes; knee-jerk slightly exaggerated on the right side. The plantar reflex on this side absent. The breathing appeared to be entirely thoracic, the diaphragm not descending at all as far as could be detected. There was no definite injury to the head; no alteration of pupils.

August 21st. A small triangular subconjunctival hæmorrhage appeared to-day on the right side. Complete control over bladder and rectum.

August 28th. There is some return of power in the right arm, and the diaphragm acts, though feebly. Right knee-jerk still exaggerated; swelling of neck almost gone.

There was steady improvement in these parts and in the power of the right leg until the note on September 6th, which says: Right arm stronger, diaphragm acting well. Ankle clonus on the right side noted for the first time; right knee-jerk still exaggerated.

September 22nd. Right arm increasing in strength, diaphragm appears to act normally. Right leg appears as strong as its fellow, but this is with the patient lying in bed. The ankle clonus and knee-jerk on right side much as before.

Oct. 4th. The knee jerks on *both* sides are now exaggerated, right ankle clonus more marked, and it is now found on the left side also. Bicipital reflex marked on right side. All the superficial reflexes on this side are diminished.

The patient had until this time been kept perfectly horizontal with sand bags to fix the neck and head, but he was now allowed to get up. He complained of weakness in the right leg and of a tendency to stagger when trying to walk. No swelling or alteration of contour of neck.

Oct. 17th. Reflexes much as before. Grasp with right hand 35 lbs.; with left 55 lbs.

The patient now left the hospital, and when seen again on February 4th, 1892, unfortunately the only note made was as to his grasp with the dynamometer, which was, right 54 lbs., left 85 lbs.

July 25th, 1893. An opportunity occurred of examining this patient again. The right arm is powerful, but he says it is not quite so good as the left. The right leg is now perfectly strong. The right knee-jerk is distinctly exaggerated, the left appears normal. There is slight ankle clonus on the right side but none on the left side. All the superficial reflexes rather inactive on both sides. Pupils equal and accommodating for light and distance.

Patient has performed his duties as a fireman on a railway engine since six months from the time of his injury, and he thinks he is as well able to do his work as he was before the injury. He says that for some months after the accident, when he was moving about, any noise for which he was not prepared gave rise to a sharp momentary jerk of the right limbs, but that now this has passed away.

Remarks.—The very evident severe injury to the neck on the same side as the paralysis, points to this part as the locality where the nervous system was injured, and excludes the head, although there was some cerebral concussion and some hæmorrhage inside the cranium, as shewn by the subconjunctival ecchymosis noticed the day after the injury. There was no dislocation or fracture of the cervical column evident, but, looking to the swelling of the neck on the right side, it is probable that the spine here suffered acute lateral flexion, which produced a hæmorrhage into and around the nuclei of the right fifth, sixth, seventh, and eighth cervical and first dorsal nerves, and that the nucleus of the fourth cervical was also to some extent involved, as the diaphragm was inactive. Had the hæmorrhage been a meningeal one instead of into the cord itself, the paralysis would probably have been produced more slowly; that is, it would have progressed after the patient was seen, soon after the injury. If the damage had been to the nerve roots, the sensory nerves would have suffered, if not as extensively as the motor, yet much more than they did.

RENAL CALCULUS AND PYONEPHROSIS.

UNDER THE CARE OF MR. BARLING, AT THE GENERAL HOSPITAL.

E. P., female, æt. 21, married eleven months, one child, was admitted on March 9th, 1893, complaining of a painful swelling in the left side of her abdomen.

History.—Ever since she was ten years old, patient had had pain "of a sharp character" in the left side of her abdomen, worse on some days than on others, and with occasional intervals of a few days' freedom. The pain had always been increased by movement and had disappeared when patient rested, but had not been associated with hæmaturia. She was married eleven months before admission, and was delivered of a child eight weeks before, the labour being difficult and followed by flooding. During the latter few months of the pregnancy she had suffered from frequent and painful micturition, being obliged to pass urine three or four times during the night. A fortnight before admission she noticed a lump in the left side of her abdomen, and three or four days later had pain of a gnawing character in it, which pain gradually increased in severity until the time of her admission. The lump once got smaller and almost disappeared, but four days before admission it reappeared and remained unchanged, being then of the same size as when she first noticed it. The urine had been thick before the confinement, but had since then gradually got clearer. Patient had never noticed any relation between the size of the lump and the condition of the urine, either as regards quantity or quality.

State on Admission.—On the left side of the abdomen there was a tumour occupying the hypochondriac, lumbar, and umbilical regions. The tumour was smooth, rounded, tense, fluctuating, and very tender on palpation, which could be performed bimanually, one hand being placed over the front and the other in the loin posteriorly. The tumour reached inferiorly one inch below the level of the umbilicus, and to the right as far as the middle line. It was dull on percussion, with the exception of a small area laterally. The patient was very anæmic and feeble.

The Urine for the first six days after admission averaged in quantity 13½ oz., of specific gravity 1018, and contained a gradually increasing quantity of albumen and a deposit of pus and amorphous urates. During the second six days the quantity of urine averaged 24 oz., and the S.G. 1017. The cardiac and respiratory systems were normal. The patient was kept under observation for three weeks, in the second of which the evening temperature reached 101° on several occasions, but was in the last always normal.

Operation.—March 28th. The patient's general condition having improved somewhat and the urine having increased in quantity, whilst the tumour became slightly smaller and less tense and the quantity of pus in the urine greater, lumbar nephrotomy was performed, and one calculus the size of a hazel nut was removed, with about a dozen smaller ones about the size of peas; these were abstracted with difficulty from the dilated calyces; the pelvis of the kidney was freely opened.

April 2nd. Wound dressed; general condition of patient good.

April 7th. Tube shortened; progress satisfactory.

April 26th. Wound healed.

May 9th. Patient discharged.

During the second week after the operation the urine averaged 24 oz., of sp. gr. 1019. During the third week, quantity 25 oz., sp. gr. 1023. During the fourth week, quantity 35½ oz., sp. gr. 1024, scarcely a trace of pus being present.

July, 1893. Patient has gained in weight and feels perfectly well; she had a ruddy face. The wound remains soundly healed.

Remarks.—The diagnosis of intermittent pyonephrosis due to calculus was made from the history of pain during childhood and from the presence of a tumour in the loin, which occasionally lessened and was associated with pus in the urine. Nephrotomy was performed rather than nephrectomy because the patient's general condition forbade the latter, and it was hoped that a nephrotomy wound would heal, and that a considerable portion of the left kidney would remain for excretion, whilst the pyuria would disappear. The result of the operation was most satisfactory.

PERISCOPE.

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REPORT ON URINARY AND RENAL DISEASES.

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ALBUMINURIA.

F. Hawkins. *Two cases of chronic Albuminuria.—The Lancet*, 1893, vol i., p. 1320.

Dr. F. Hawkins related to the Clinical Society two interesting cases of chronic albuminuria.

Case 1. A male, 49, rejected for life insurance twenty-five years ago. Urine dark amber, clear, 1025, a third of a column of albumen, uric acid crystals. He was strong and well, took vigorous exercise, and exhibited no abnormality beyond some displacement outwards of the heart's apex. Pulse did not exhibit any marked degree of intra-arterial tension.

Case 2. Albuminuria of forty-three years' standing; patient a medical man, gave up practice in 1841 on the advice of Dr. Bright, who gave it as his opinion that the patient would not live two years. The urine contained at all times about a third of albumen, and this was established on authenticated data since 1874. The specific gravity was usually 1012, and nocturnal micturition had been the rule for eighteen years. In 1887 sugar was detected, which persisted for eight months and then disappeared. He suffered off and on from diarrhœa for some years. The pulse was frequently intermittent, and there was some cardiac hypertrophy, but the sounds, except being accentuated at the base, were said to be normal. The patient died cf cerebral hæmorrhage in 1892, being then 88 years of age.

W. T. Gairdner. *The significance of Albuminuria; a typical case*—*The Lancet*, 1893, vol. i., p. 556.

Professor Gairdner records the case of a young man, aged 26, who had had scarlatina at the age of nine and a sore throat at eighteen, but who, on presenting himself for examination for life insurance, appeared to be an unexceptionable life, with the exception that his urine contained a distinct trace of albumen. This was persistent but not quite constant, but did not appear to be "cyclical." Professor Gairdner considers that such a case could not be safely taken by a life insurance company, and adheres to his view that such albuminuria is a *danger signal.*

R. Barnes. *The significance of Albuminuria.*—*The Lancet*, 1893, vol. i., p. 615.

Dr. Barnes writes to defend the use of the term *physiological albuminuria*, which, he says, was originally invented to denote the temporary albuminuria observed in pregnancy. He writes, somewhat scornfully, that "when light was sought elsewhere than in the dead house, when direct clinical observation was appealed to, it came to be recognised that albumen was often found in the urine of persons whose kidneys were healthy." He repeats, with illustration, the statement that the albuminuria of pregnancy is "physiological." He says: "Pregnancy induces exalted vascular and nervous tension. This tension is too great for the complete response of the kidneys; but reduce the tension by bringing the pregnancy to an end, and immediately the kidneys take up their work." [This is imaginary pathology; if the kidneys in such a case are examined, something more than physiological conditions are always met with, and after repeated pregnancies, chronic nephritis may result; but, on the principle *causâ sublatâ tollitur effectus*, there is always a tendency to recovery when the pregnancy terminates, and if it does not recur, the kidney will, as a rule, recover completely. Nevertheless, this tendency to recovery does not warrant the use of the expression "physiological."]

R. Hingston Fox. *The prognosis of Albuminuria.*—*The Lancet*, 1893, vol. i., p. 600.

Dr. R. H. Fox suggests the formation of a committee to consider and report on the prognosis of functional albuminuria—that is, uncomplicated and unexplained albuminuria. Of these he rightly says that the type called postural or cyclical is the only one that is well defined. He particularly wishes information regarding cases of albuminuria in measurable quantity, and he refers to a case recorded by Mr. Henry Lee, in which he found intussusception of one ureter. He refers to temporary albuminuria following bathing, severe muscular exercise, and the ingestion of albuminous food, as true "physiological albuminuria;" he mentions the spurious albuminuria of pyelitis, cystitis, gleet, and leucorrhœa; and agrees with Dr. Maguire that there is an albuminuria of high tension and of low tension.

T. G. Lyon. *The prognosis of Albuminuria.—The Lancet*, 1893, vol. i., p. 955.

Dr. Lyon suggests that the insurance difficulty for these cases of uncomplicated albuminuria may be got over by adopting the "double tontine system;" if the insured lives a certain time, he receives a certain sum; if he dies before that time, his representatives receive half the amount. He would take them at ordinary rates, because he urges that if the man is going to develope kidney disease, he will not do so in all probability until after middle life.

H. Milton. *Ibid.*

Dr. Milton, of Cairo, reports a case of albuminuria in a woman, due to the presence of a persistent Gaertner's duct which opened into the vagina and caused a constant discharge of a fluid containing albumen and sodium chloride with a specific gravity of 1026.

BRIGHT'S DISEASE.

C. Eisenlohr. *Zur Entwickelung der Schrumpfniere aus akuter Nephritis bei Infectionskrankheiten.* — *Deutsche med. Woch.*, xviii., 1892.

The interesting point in this case is that it shews how rapidly contracting kidney may be developed as a sequel to an attack of acute nephritis. The patient, a maid-servant aged 39, suffered from acute nephritis complicating pneumonia. Two months later she died in uræmic coma, and both kidneys were atrophied. As the patient had been under observation for ten years previously, the author believes he can exclude the existence of a latent pre-existing chronic nephritis.

Fernet. *Acute Nephritis due to infection by the bacillus coli.—Le progrès méd.*, 1892, No. 52.

M. Fernet relates a case of acute Bright's disease in a girl of 18, where the urine contained organisms which were proved by the microscope and cultivation to be the bacillus coli. The patient is said to have presented the "signs of typhoid fever," *plus* vomiting and hæmaturia, and *minus* pain, iliac gurgling, and rose spots.

Ch. Fiessinger. *Le mal de bright épidémique.— Revue de médecine*, 1893, p. 404.

The author believes that he has already proved that Bright's disease may occur in an epidemic form apart from scarlatina. He relates an epidemic in the little town of Oyonnax, in the department of Ain, which broke out at a time when the town was free from scarlatina. The first case was a young woman eight months pregnant, who lived in perfectly healthy surroundings, and who recovered completely after her confinement. The second case was also a young pregnant woman, a neighbour of the first, but not visiting, and the disease could not be shewn to have been directly transmitted. This case also recovered after her confinement. In the course of the next six months eight more cases occurred, with one exception in different houses. In one case there was an initial sore throat, in another it followed erysipelas; in yet another there was chronic suppuration; while in others there was an old history of scarlatina or measles. In only one case was there any fever. No attempt appears to have been made to isolate an organism.

J. Black Milne. *A note on the etiology of acute Bright's Disease.—Sheffield Med. Jour.*, vol. i., p. 195.

Dr. Black Milne relates three cases of acute Bright's disease occurring in three children in the same house. The cases ran a favourable course, and terminated in recovery. He could not trace these cases to any of the recognised causes, exposure to cold and wet, or scarlatina; but there was a very foul-smelling privy midden in the back yard. He thinks these are cases of acute infectious nephritis due to a specific microbe, and he refers to the writings of Mircoli and Bouchard on this subject; while he expresses the opinion that in the future this subject will be elucidated by the proof of the bacterial origin of such cases.

C. H. Ralfe. *On some clinical varieties of chronic Albuminuria, chiefly with regard to prognosis.—The Lancet*, 1893, vol i., p. 778.

Dr. Ralfe writes that better knowledge enables us to say that a large proportion, perhaps one-third or one-half, of all cases of albuminuria are not due to organic renal disease, and that the earlier recognition of Bright's disease has made its prognosis more hopeful even of cure, and in most cases of their probable duration. He believes that cases of contracting kidney, if recognised early and placed on a non-stimulating diet—chiefly milk, fish, farinaceous food, and white meats, whilst red meats, coffee, and wine are forbidden—may live for many years. The pale or mottled granular kidney affords an even less grave prognosis. Kidney disease due to syphilis, malaria, and lead, he thinks unfavourable. Chronic congested kidneys—the cyanotic indurated form—last a long time. Lardaceous degeneration runs a protracted course. Albuminuria not associated with kidney disease in early life is of slight prognostic significance, but at and after middle life it is serious. He thinks milk diet is best suited to acute and sub-acute cases, while in chronic cases it is positively injurious.

A. Baginsky. *Zur Kenntniss der Pathologie der Nieren im kindlichen Alter.—Archiv für Kinderheilkunde*, xv., p. 161.

Baginsky has estimated the nitrogenous intake and output (in urine and fæces) of certain children suffering from various forms of kidney disease for the most part on pure milk diet. The results shewed that at times no small part of the nitrogen absorbed is retained in the body; but these periods alternate with others, in which the amount excreted is in excess. He concludes, from his researches, that in acute nephritis and in congested kidneys there is a diminished function for nitrogenous excretion, but that this is not absolute, under definite conditions being so exaggerated that even the tissue nitrogen may be excreted. In other experiments he found that the greatest part of the nitrogen (95 per cent.) is excreted as urea, as Gumlich has stated. No definite relations exist between the quantity of urine, its specific gravity, and nitrogen excretion, either in acute nephritis or congested kidney. Parallel experiments with administration of solution of iodide of potassium in healthy and nephritic children shewed that the diseased kidneys begin to excrete the salt later, and the excretion lasts longer than with healthy kidneys. He concludes from this that there is a certain retardation of the functions of diseased kidneys which may lead to a gradual accumulation of nitrogenous bodies.

Dieulafoy. *The Minor Symptoms of Bright's Disease.—The Lancet*, 1893, vol. i., p. 1512.

The Paris correspondent of the *Lancet* credits Prof. Dieulafoy with the opinion that the following minor symptoms, taken together, are diagnostic of Bright's disease even in the absence of albuminuria, which was absent in one-fourth of sixty cases. The symptoms: 1, Auditory troubles, noises in the ears, and Menière's vertigo; 2, asphyxia of the extremities, the fingers or hands becoming bloodless, pale, and numb; 3, itching; 4, frequent micturition, which he calls pollakiuria; 5, cryæsthesia, or sensitiveness to cold; 6, cramps in the calves of the legs; 8, epistaxis; 9, electriform shocks at the moment of falling asleep; 10, distension and tortuosity of the temporal artery.

P. Ernst. *Ueber das Vorkommen von Fibrin in Nierencylindern.—Beit. z. allg. Pathol. u. pathol. Anat.* xii, p. 553, 1893.

Ernst has demonstrated by Weigert's method that the exudation in the glomerular capsules and the urinary tubules in chronic nephritis contains fibrin, which at first is excreted in a fine reticulum, and is afterwards demonstrable in the hyaline cylinders by various degrees and localisations of the blue colour. The blue coloration of the cylinders is generally more frequent than the indication of fibrinous networks inside the capsule spaces. In acute nephritis he almost never obtained the fibrin reaction. He therefore agrees with Israel's views as to the fibrinous basis of many casts.

F. v. Ackeren. *Ueber Harnsäureauscheidung bei einigen Krankheiten, insbesondere beim Morbus Brightii.* — *Charité Annalen*, xvii., p. 206, 1892.

Ackeren has estimated the daily quantity of uric acid excreted in eleven cases of inflammatory renal disease—four of acute nephritis, four chronic parenchymatous nephritis, and three of contracting kidney. He found in all cases that the daily quantity was within the normal limits. In three cases there was retention of nitrogenous material; in three others uræmic symptoms occurred without the uric acid excretion being affected. In all these cases the daily amounts underwent fluctuations, the causes of which are not precisely known. Simultaneous estimations of urea and phosphoric acid gave very varying results without shewing any definite relations.

W. Hale White. *Diet in Chronic Bright's Disease.*—*The Lancet*, 1893, vol. i., p. 99.

In a paper read before the Royal Medical and Chirurgical Society, Dr. Hale White urged that there was by no means complete unanimity as to best diet for chronic Bright's disease, and that as *a priori* reasoning was fallacious, he had taken ten cases of chronic Bright's disease, in each of which the urine had been carefully analysed daily for several weeks, and had submitted them to the following diets:—1, Milk diet, which consisted of three pints of milk daily, containing 1076 grains of proteid; 2, farinaceous diet, consisting of bread and milk, containing 1137 grains of proteid; 3, full diet, consisting of bread, butter, milk, meat, and rice pudding, containing 1522 grains of proteid. Sometimes the effects of adding fish, eggs, or more meat were tried.

The following results were noted:—The *quantity* of urine was least upon full diet; the *sp. gr.* was higher, speaking generally, upon full diet; the *albumen* was greatest on milk, less on farinaceous, and least on full diet; the *urea* varied, sometimes being less on full diet, at others less on milk diet; the *general condition* of the patients was, as a rule, best on full diet. He does not think meat causes uræmic symptoms, and the diuretic effect of milk may be obtained by drinking plenty of water.

In the discussion which followed, the speakers were rather shy of grappling with the points raised, though no one spoke in favour of absolute milk in this condition.

In the *Lancet* a fortnight later Dr. Donkin (*ibid.*, p. 1165) wrote a letter confirming Dr. Hale White's views, and saying that for some years he has given cases of chronic Bright's disease full or mixed diet, and he referred to the improvement evinced "on the substitution of ordinary good living for the theoretically strict diet of the nephrologists." In some cases the improvement was so great as "to lead to the apparently inevitable conclusion that they had been suffering more from the treatment than from the disease." He does not include in the class for which this free diet is suitable "those patients with dropsy, much albuminuria, and marked oliguria; still less those who are suffering from acute and sub-acute nephritis."

A week later Dr. Ralfe (*ibid.*, p. 1222) admitted that the indiscriminate and routine prescription of milk diet in chronic renal disease may with advantage be modified; but he denied that "nephrologists" are responsible for the too general application of theoretic views. "On the contrary, most writers—certainly English—have pointed out that the cases in which benefit is to be obtained by the exclusive use of milk belong almost entirely to the recent acute form. Dr. Saundby, a distinguished nephrologist, in his published Lectures on Bright's Disease, p. 271, is 'convinced that absolute milk diet is not only unnecessary and extremely distasteful to most patients, but positively harmful.'" In Dr. Ralfe's own work on Diseases of the Kidney he states of this diet: "Though of little use—indeed I have in one case found it positively do harm—it is most advantageously employed during the subsidence of the attack (p 262)." And again (p. 263): "Although absolute milk diet should never be omitted when the albuminuria is persistent, still there are many cases that get well without the necessity for employing such a rigorous measure." And, finally, he expresses the opinion that the "importance of regulating the *quantity* of the food, and not overloading the digestive organs, is greater than rigidly supervising the quality." Again, he says in this letter: "So long as the pulse has a high tension and the left ventricle is still heaving with strong impulse, a light—not necessarily low—diet should be insisted on. On the other hand, when the pulse is failing and the heart muscle degenerating, more liberal diet is called for and must be judiciously given."

The Paris correspondent of the *Lancet* (*Ibid.*, p. 172) quotes from an article by MM. Lecorché and Talamon in *Médecine Moderne* on the dangers of long-continued milk diet in Bright's disease, which, in their opinion, causes what they call *anémie lactée.* They reserve absolute milk diet for cases of acute nephritis and for temporary use during certain complications of chronic Bright's disease, such as uræmia and hæmaturia, but only for a week or a fortnight at most.

J. M. Da Costa. *The Albuminuria and the Bright's Disease of Uric Acid and Oxaluria.—Amer. Jour. Med. Sci.*, 1893, vol. 105, p. 1.

Dr. Da Costa describes what he regards as typical examples of albuminuria or Bright's disease due to uric acid and oxaluria. He considers that there is usually dyspeptic derangement, with flatulence, lack of appetite, and fulness after eating, a weak faltering or intermittent pulse, rarely rigidity of arteries, conspicuous absence of cardiac hypertrophy, dropsy and eye affections, a slight rise of temperature in the afternoon, pronounced nervous symptoms, headache, listlessness, sleeplessness, giddiness, etc. The urine is about normal in amount, the specific gravity is high—1022-28, or even 1036; it deposits uric acid, or urates or oxalates; the amount of albumen is small, most after breakfast, sometimes absent, or very slightly present and detectable only by the more delicate tests; casts are scanty or absent; they are hyaline or epithelial, rarely granular, never fatty. It occurs at all ages. He concludes the paper by suggestions for treatment, which are, however, of a routine character.

DIABETES.

A. Chauveau and Kaufmann. *Sur la pathogénie du diabète. Le pancréas et les centres nerveux régulateurs de la fonction glycémique.—Compt. rend.*, T. 116, Nos. 6, 7, 10, 11, 12.

The following conclusions have been drawn by Chauveau and Kaufmann from their experiments on dogs:—

1. Sugar formation in the liver is under the influence of a regulating nervous apparatus.

2. In experimental pancreatic diabetes we have to do with an influence of the pancreas on the nervous centres.

3. There is a controlling centre in the medulla, and an exciting centre in the upper part of the spinal cord to the origin of the fourth pair of cervical nerves.

4. From the controlling centre for the liver run communicating fibres through the four upper pairs of cervical nerves and their rami communicantes to the sympathetic, whilst the exciting centre acts on the liver through such rami in the fourth to the sixth dorsal pairs.

5. The pancreas is hypothetically supposed to act by exciting the controlling centre, and moderating the exciting centre by means of the action of some secretion poured into the blood. When the pancreas is extirpated, this secretion is no longer present in the blood, the controlling action fails, whilst the exciting action is increased, so that there is increased sugar formation with excess of sugar in the blood and glycosuria.

6. Section of the medulla between the axis and atlas cuts off

the controlling centre, but leaves the exciting centre free to act, so that hyperglycæmia and glycosuria follow, but in a less degree than after extirpation of the pancreas, because the exciting centre is not still irritated as in the last case.

7. Section of the spinal cord between the fourth cervical and sixth dorsal pairs abolishes the action of the exciting centre, but leaves the controlling centre free; hence there is diminished sugar formation.

8. Sympathetic ganglia play a special rôle in the communication of both centres with the liver.

9. The regulating centres for sugar formation act like secreting centres; their action is bound up with that of the vaso-dilator and vaso-constrictor centres, so that the blood-stream through the liver and pancreas and activity of the secreting elements are thereby regulated.

M. Hanriot. *Sur l'assimilation du glycose chez l'homme sain et chez le glycosurique.—Arch. de physiol.*, 1893, No. 2, p. 248.

The author claims to have established that, in health, glucose is converted into fat, and burnt off as such in the organism. In health, a meal of starchy food, or of glucose dissolved in water, raises the respiratory co-efficient from 0·74, while fasting, to 1 or 1·10. In glycosuria this increase does not occur, owing to the diabetic having lost the power of converting glucose into fat. Antipyrin, in doses of four grammes daily, diminished the sugar, but did not affect the respiratory co-efficient. The number of litres of air expired increases, in health, after a meal by 66 per cent., but in diabetes it only increases 3 per cent. It is very difficult to investigate this point clinically, but if it could be practised, it might be a valuable indication of the progress of the disease.

E. Hedon. *Sur la consommation du sucre chez le chien — Arch. de physiologie*, 1893, No. 1, p. 154.

Hedon has sought to determine what becomes of the sugar administered to dogs deprived of their pancreas. In the more severe cases, where probably the extirpation of the gland has been quite complete, he found that there was absolute incapacity to utilise glucose absorbed from the digestive tract.

Külz (*Beitr. z. Path. d. Diabetes mell.*—Marburg, 1874, pp. 130–167) has observed that lævulose does not cause sugar to appear in the urine in mild cases of diabetes, and in severe cases does not increase it, and that even cane sugar only caused an increase of one-half. In dogs deprived of their pancreas the author has found that the increase of glycosuria only corresponded to half the cane sugar ingested. Lactose caused only a very disproportionate increase of glycosuria; it was proved that all the urinary sugar was glucose, not lactose; the fæces contained no sugar.

In mild cases, where the gland was perhaps incompletely extirpated, the ingestion of thirty to forty grammes of sugar did not cause glycosuria, or only caused a slight and transitory excretion of sugar, while 700 grammes of bread caused 4 per cent. of sugar. In a detailed description of the experiments with one dog, the urine only contained at most a small proportion of the sugar ingested; 200 to 300 grammes of bread had a much more decided effect in producing glycosuria than 40 grammes of glucose. After the dog was killed, its liver was found to contain a large amount of glycogen.

E. Gley. *De la glycosurie chez les chiens thyroïdectomisés.*—*Arch. de Physiol.*, 1893, No. 2, p. 420.

Falkenberg originally announced the fact that dogs deprived of the thyroid gland sometimes passed urine containing sugar. The experiments were made on twenty dogs in Külz's laboratory at Marburg. In thirteen instances glycosuria was observed; it began between the second and twelfth day after the operation, and lasted one to three weeks, but was usually intermittent and irregular. Gley has observed it in four out of six dogs, but it was transitory in all, lasting at most ten days. He thinks this "diabetes" may be due to bulbar excitation due to the operation, but he thinks the subject worthy of further attention.

Freyhan. *Diabetes due to Pancreatic Calculi.* —*Berliner klinische Wochenschr.*, 1893, No. 6.

Freyhan reports two cases of *diabète maigre* in which calculi were found packed in the pancreatic duct. The gland tissue was completely destroyed, being replaced in one case by fat, in the other by fat and fibrous tissue.

P. Duflocq and Dauchez. *Etude sur le diabète du premier age.—Revue de Médecine*, 1893, p. 546.

The authors remark on the rarity of diabetes among young children, and especially the few recorded cases of coma at an early age. Their case was a male infant, aged 18 months, who passed a large quantity of water. He had wasted and become miserable, complaining, and nervous—symptoms attributed by his mother to teething. His abdomen was distended with flatus; pulse small, uncountable; cyanosis, emaciation; temperature 37·8°. He was treated by an enema and ether mixture. Next morning his temperature was 36·5°; he had vomited several times in the night. Towards mid-day he became comatose; at three he died without any fresh symptoms. No urine could be obtained, but the shirt, which was soaked in urine, was macerated, and the water found to contain 24·32 grammes of sugar. The authors quote an observation by Conolly (*Med. Times and Gaz.*, July, 1874) of a child, aged 21 months, who had been ailing for three months with thirst, frequent micturition, and wasting. A maternal cousin was diabetic. The child presented the facies abdominalis. He was pale, wasted, and cried out every minute, "A drop of water." He drank five or six pints daily, and would drink more if permitted. He passed urine constantly, so that the amount could not be measured; skin a little dry; appetite ordinary, never excessive; great muscular debility. This child died comatose.

Busch (*Ugeskrift for Læger*, 25th March, 1876) has reported a case of a child of 15 months who fell ill with thirst, wasting, agitation, and voracious appetite. Three weeks later the urine was examined and the nature of the case determined. It died of coma soon after.

The authors believe that dentition plays a part in the etiology of these cases. They refer to the exclusive milk diet, to possible blows or falls, and to heredity, of which last there was distinct evidence, a grand-uncle having been decidedly diabetic and a grand-aunt probably also. The modifications of character are more marked in children than in adults; constipation is a preponderating symptom; distension of the belly; frequent micturition—the infant constantly wets its clothes. The thirst may be regarded by the parents as a sign of good appetite. "How can he be so ill to-day when he fed so well yesterday?" said the parents in this case. Coma occurs rarely, but may affect any age.

Recovery from diabetes in children is very rare. A case is recorded by Kitselle (*Journ. für Kinderkrankheiten*, 1852) of his own child, which became diabetic a few days after birth and recovered at eight months. Others are recorded by Garnerus and Rosenbach. The evolution of the malady in children is very rapid. They quote West's cases of two children which together lasted only six weeks. The thirsty children succumb more rapidly to intoxication of the blood by the poisonous products of the disease.

C. Kisterman. *Ueber den positiven Werth der Nylander'schen Probe nebst Bemerkungen über das Phenylhydrazin als Reagens auf Traubenzucker im menschlichen Harn.—Deutsches Arch. f. klin. Med.*, Bd. 50, p. 423.

Out of 261 pathological urines Kisterman obtained thirteen times a positive result with Nylander's reagent, but as these underwent no change with yeast, it could not be due to grape sugar. The influence of drugs was excluded. Except two cases, the specific gravity of the urines in which these positive results were obtained lay between 1020 and 1030. Analogous observations were also made with normal urines, with which a positive reaction was obtained in 6 out of 25, though grape sugar could be excluded, so that a positive reaction with this reagent does not shew the presence of the sugar, and its value is rather that a negative result excludes sugar. The reaction is perhaps due to glycuronic acid; at least, after the use of camphor it was very well marked. The phenylhydrazin test is not decisive for a small quantity of sugar. On the contrary, on treating urine with H Cl phenylhydrazin and sodium acetate, the precipitate shewed very different microscopic appearances, according as the urine diluted fivefold or the same with the addition of 0·01 per cent. sugar was employed. He therefore recommends in doubtful cases to dilute the urine five times and then test. [Nylander's test is a modification of the bismuth test, and its numerous fallacies have been previously pointed out. It is perhaps hardly necessary to repeat that Fehling's solution is the most convenient ordinary test, but that fermentation is the only absolutely certain indication of the presence of sugar.—R.S.]

Frank. *Ueber die Phenylhydrazin probe zum Nachweis des Zuckers.—Berl. klin. Woch.*, 1893, p. 255.

Frank comes practically to the same conclusions as the above.

Derignac. *The total Acidity of the Urine in Diabetes.—Arch. gén. de méd*, 1893, p. 217.

In a paper read before the Académie de Médecine on the acidity of the urine, Derignac maintained that the total acidity corresponds to the sugar, phosphoric acid, and urea; that it always increases when symptoms of acetonæmia occur, and thus is a sign of some prognostic value, by attending to which impending coma may be warded off.

A. Baginsky. *Stoffwechsel bei einem an Diabetes mellitus leidenden Kind.—Archiv für Kinderheilkunde*, xv.

Baginsky has estimated the alimentary intake and output in a child of 8 suffering from tolerably severe diabetes and on strict diabetic diet. The analysis shewed that 8·4 per cent. of unchanged nitrogen remained in the fæces (5–10 per cent. normal); that of 104 grammes daily of fat all was taken up in the intestine but 3·5 per cent.; and that 200-300 or even 500 grammes of milk daily were well borne.

F. M. Rowlands. *Pancreatic Diabetes ending in Coma.—Brit. Med. Journal*, 1893, vol. i., p. 13.

Dr. Rowlands reports a case of diabetes in a woman, aged 57, who had been ill a year. Under diet and codeia the patient improved and gained flesh, the sugar disappearing entirely, to recur and disappear again. During its second disappearance she became comatose and died. The urine before death was sugarless, and did not give the ferric chloride reaction. The pancreas was atrophied and calcareous; microscopical examination shewed fibrous tissue enclosing granular remains of the gland parenchyma.

J. de Bary. *Diabetes mellitus bei einem 9-jahrigen Mädchen.—Arch. für Kinderheilkunde,* xv, p. 104.

The point of interest in this case is that the first symptom of the disease was a vaginal discharge recalling the well-known and frequently-observed diabetic pruritus vulvæ.

H. W. G Mackenzie. *The treatment of Diabetes Mellitus bv Pancreatic Juice.—Brit. Med. Journal,* 1893, vol. i., p. 63.

Dr. Hector Mackenzie refers to a suggestion in the *Journal* of January 7th, by Dr. Mansell-Jones, of the employment of pancreatic juice for the treatment of diabetes, and relates two cases and refers to another in which benefit was obtained by the use of liquor pancreaticus in half-ounce doses immediately after food, but the results were not very considerable.

Mr. Neville Wood (*ibid*, p. 64) relates two cases treated by pancreatin pills without definite benefit.

Dr. Hale White (*ibid.*, p. 452) records two cases treated by feeding on raw pancreas, and the hypodermic injection of liquor pancreaticus. In one there was lessening of sugar, in the other no such result. In one the treatment caused an erythematous rash with some fever.

Dr. A. L. Marshall (*ibid.*, p. 743) reports another case, treated by Savory and Moore's pancreatin, in which the urine and sugar increased under the treatment.

Dr. Knowsley Sibley (*ibid.*, p. 579) publishes a case for which he prescribed a fresh sweetbread daily, all the juice to be squeezed out through a sieve and to be drunk raw, the sweetbread to be very slightly cooked and eaten. Under this treatment the case, which was not very closely observed, improved in health, and the urine diminished in amount, but the percentage of sugar was not reduced.

Dr. Wills (*ibid.*, p. 1265) records an exceedingly mild case of diabetes in a man, aged 45, who was made to eat raw pancreas minced up with gravy and bread-crumbs. The treatment was continued for three months, and the effect was practically nothing at all.

Minkowski. *Pancreatic Diabetes.*—Supplement to *Centrlb. f. klin. Med.*, 1892.

With reference to the use of pancreas and pancreatic extracts in the treatment of diabetes, the experiments of Minkowski are of special interest. He found that dogs rendered diabetic by extirpation of the pancreas were not benefited by feeding with fresh pancreas or by the hypodermic injection of a fresh emulsion of the gland. Left rotatory carbo-hydrates were found to be useful as foods, but lævulose given in large quantities caused increased excretion of dextrose. If a portion of the pancreas in vascular connection with the abdomen was transplanted to the subcutaneous tissue, it sufficed to prevent glycosuria although the rest of the gland was extirpated; but if these vascular connections were cut off, abundant glycosuria occurred.

W. Hale White. *On the Use of Soya Beans in Diabetes Mellitus.*—*Practitioner*, vol 50, p 821.

Dr. Hale White has used Van Abbott's Soya biscuits with good results in cases of diabetes He did not notice any ill effects; they were not objected to by the patients, and under their use the sugar diminished He maintains, but on insufficient grounds, that they contain less starch than gluten preparations, to which he prefers them

J. Dougall. *Ergot in Diabetes Mellitus. Glasg Med. Jour.*, vol. 39, p. 96

Dr. Dougall publishes the notes of the case of a blacksmith, aged 21, admitted to the Royal Infirmary with diabetes of five weeks' standing He weighed 8 st. 12 lbs.; urine 226 oz.; 1040; sugar 15 oz. per diem. He was treated by ordinary diabetic diet, with gluten bread, and half a fluid drachm of ergot three times a day. He was hypnotised without benefit by Dr. Kingsbury. The ergot was gradually increased to

1½ drachms thrice daily. Under treatment the sugar fell to 1½ oz daily, and his weight increased 8 lbs. On omitting the ergot, the sugar rose to 9·6 oz daily. He quotes Hunt and Pepper for other cases indicating the efficacy of the drug. The patient left the hospital after four months' treatment, weighing 9 st 2 lbs; urine 64 oz. daily, containing 4·9 oz. of sugar. [This result is by no means striking, and the only evidence tending to shew that the ergot did good was the increase of sugar after its omission. This may have been a coincidence.—Rep.]

W. Murray. *Rough Notes on Remedies.—The Lancet*, 1893, vol. i., p. 406.

Dr. Murray recommends arsenic for diabetes in the form of liq. arsenici hydrochlorici—10 drops three times a day—in combination with diet and codeia, and gives notes of four cases cured by this means.

M. Piatkowski. *Ueber die therapeutische Wirkung des Benzosols bei der Zuckerharnruhr.—Wiener klin Wochenschr*, 1892, No. 51.

Piatkowski has tried benzosol, a derivative of creosote, in eight cases of diabetes. It is an insoluble substance, which splits up in the intestine into benzoic acid and guaiacol. It is tasteless and scentless, and gives no trouble to take. Daily doses of four to five grammes caused some diarrhœa. In the cases observed there was a diminution of the sugar, in some instances to *nil*. The severe cases were less affected. The drug acts without being influenced by the duration of the case or the previous treatment.

George Harley. *Remarks on Diabetes and Gout in their relationship to Liver Disease, with Hints regarding their scientific treatment.—Brit. Med. Journal*, 1893, vol. i., p. 1097.

Dr. Harley relates several cases of mild diabetes in elderly patients associated with some hepatic signs or symptoms. He thinks rapid loss of flesh a very bad prognostic sign, and, next to this, what he calls the appearance of acetone in the urine, by which he means the well-known ferric chloride reaction, and, lastly, the "ethereal apple odour of the breath." He recommends the administration of honey or cane sugar when there is great loss of flesh and strength.

URINE.

C Dapper. *Ueber Harnsäureausscheidungen beim gesunden Menschen unter verschiedenen Ernährungsverhältnissen*—*Berl. klin. Woch.*, 1893, p. 619.

Dapper has examined the excretion of uric acid in himself and certain laboratory colleagues under varied conditions of diet, and arrives at the following conclusions :—

1. The absolute excretion of uric acid varies greatly in different healthy individuals.

2. The relation between uric acid and nitrogen varies in different individuals, and, according to the albuminous nature of the diet, within very extensive limits (23·2–122·4 !).

3. No relation exists between the uric acid excretion and the body weight. The value per 100 kg. varies between the maximum of 1·829 grammes and the minimum of 0·528 grammes. Pfeiffer's method is therefore baseless.

H. Rosin. *Eine empfindliche Probe für den Nachweis von Gallenfarbstoff im Harn.*—*Berl. klin. Woch.*, 1893, p. 106.

Rosin recommends a modification of the ordinary iodine test for bile pigment. A very dilute tincture of iodine is employed, of the colour of port wine, the proportion being about ten per cent. of the officinal tincture diluted with spirit, and this diluted tincture is floated on the urine to be examined in a reagent glass. If bile is limited, a grass-green ring is formed where the two layers of fluid meet. This method has been used in Professor Senator's wards for the last nine months, and is thought to be the most delicate and most simple test available.

C. von Noorden. *Ueber neuere Arbeiten zur Peptonurie.*—*Berl. klin. Woch.*, 1893, p. 72.

The following abstract is due to the above-mentioned author.

1. Schulter: Over het opsporen van peptoon in de urine.—*Dissert. Groningen*, 1886; *cf. Maly's Jahresbericht*, 1887.

2. Senz: Ueber Albumosurie und Peptonurie. — *Dissert. Berlin*, 1891.

3. Stoffregen: Ueber das Vorkommen von Pepton im Harn, Sputum, und Eiter,—*Dissert. Dorpat*, 1891.

4. Devoto: Ueber den Nachweis des Peptons und eine neue Art der quantitativen Eiweissbestimmung.—*Zeitschr. f. phys. Chemie*, xv., 465, 1891.

5. Thomson: Ueber Peptonurie in der Schwangerschaft und im Wochenbett.—*Deutsche med Woch.*, 1889, No. 44.

6. H. Hirschfeldt: Ein Beitrag zur Frage der Peptonurie.—*Dissert. Dorpat*, 1892.

7. v Jaksch: Ueber den Nachweis und das Vorkommen von Pepton in den Organen und dem Blute von Leukämischen.—*Zeitschr. f. phys. Chemie*, xvi., 243, 1892.

8. Heller: Propeptonurie nach Scharlach.—*Berl. klin. Woch.*, 1889, p 1038.

9. Loeb: Propeptonurie, ein häufiger Befund bei Masern.—*Centralbl. f. klin. Med.*, 1889, p. 261.

Ibid: Ueber Peptonurie bei Masern, nebst einigen Bemerkungen über Propeptonreactionen.—*Centralbl. f. Med. Wiss.*, 1891, p. 577.

10. Koppen: Ueber Albuminurie und Propeptonurie bei Psychosen.—*Arch. f. Psych*, xx., 3, 1889.

Formerly all albuminates not precipitated by ferrocyanide were regarded as pepton, until Kühne shewed that part of this residue is thrown down by ammonium sulphate, part not The former is now recognised as albumose, and only the latter called pepton ; hence the need for revising our data respecting peptonuria.

Albumose is characterised by not being thrown down by heat or by being more easily soluble in heat than in the cold, by being precipitated by ammonium sulphate, and by giving the biuret reaction with alkaline copper sulphate solution. Pepton is characterised by not being thrown down by heat or ammonium sulphate, but giving the biuret reaction.

The first point for clinical investigation was whether what had been previously called peptonuria had to do with genuine Kühne's pepton.

Schulter, working under Stokvis, never found Kühne's pepton in urine; but his methods were not perfect. Senz, in Gerhardt's wards, came to the same conclusion. Stoffregen and Devoto confirmed these results. Thomson, in puerperal women, Hirschfeldt and von Jaksch, in leukhæmia, came to the same result. Van Noorden adds that he and several colleagues have had like ill-success in finding genuine pepton.

The conclusion is that in future we ought to speak of albumosuria and not of peptonuria.

The next question is whether propeptonuria, as found by Bruce Jones and Kühne in osteomaluria and by Ter Gregoriantz and von Noorden in other diseases, is identical with albumose, or should it be distinguished. It is difficult to answer this; but it appears that what the older authors called hemialbumosuria or propeptonuria was a mixture of albumen and albumose.

A. E Garrod. *On Hæmatoporphyrin as a Urinary Pigment in Disease.—Journ. of Path. and Bact.*, Vol. i., p. 187.

Dr. Garrod describes a process for detecting minute traces of hæmatoporphyrin by treating the urine with excess of sodium or potassium hydrate, which throws down this substance clinging to the earthy phosphates; the precipitate is then collected on a filter, washed with distilled water, and afterwards treated with alcohol acidulated with sulphuric acid, when an almost pure solution of hæmatoporphyrin is obtained. The urine of healthy individuals so treated was found to contain minute traces of this pigment, while considerable excess was met with in many diseases, especially in acute rheumatism, gout, chorea, tuberculosis, pneumonia, pleurisy, anæmia primary and secondary, and hepatic diseases, but its amount bore no direct relation to the severity of the attack, the amount of febrile disturbance or the intensity of the local manifestation.

G. Herschell. *On a urinary chromogen in cases of Chlorosis.—The Practitioner*, 1893, vol. 50, p. 356.

Dr. Herschell draws attention to a rose red coloration on adding nitric acid observed in the urine of certain cases of chlorosis. He dissents from the view that it is due to destruction of blood corpuscles, and believes that it is something absorbed from the intestine. He recommends flushing the colon by introducing a large quantity, a gallon, of what he calls "plain hot water," by which we think is meant water as hot as it can be comfortably borne.

Jaksch. *A case of Fibrinuria.—Arch. gén. de méd.*, 1893, p. 483.

A case is abstracted from the report of the proceedings of the Medical Society of Prague of a man, aged 39, free from diphtheria of the urinary passages or tuberculosis, in good health, with neither hæmaturia nor chyluria, suddenly taken with fever, violent lumbar pain and, on palpation, a sense of resistance in the left renal region; urine albuminous; a few days later it became ammoniacal, and contained pus, hæmatoidin crystals, epithelium from the pelvis and ureter, and remarkable fibrinous coagula elegantly ramified, of which preparations were presented. These symptoms lasted a short time only, and the fibrinuria disappeared. The author attributes them to an abscess of the left kidney, probably caused by a hydatid cyst, although no hooklets were found in the urine, but he does not think their absence is sufficient to negative this hypothesis.

M. Abeles. *Ueber alimentäre Oxalurie.— Wiener klin. Woch.*, 1892, Nos. 19, 20.

Abeles found in spinach 1·37 to 3·6 per cent. of oxalic acid in the form of a soluble alkali salt, and 1·21 to 2·73 in insoluble combination with lime; in dried sorrel, 0·21 per cent. of soluble and 0·21 per cent. of insoluble oxalate; in dried tea-leaves, 0·47 to 0·51 per cent. and 0·27 per cent. By experiments upon himself he discovered that after swallowing large quantities of tea and spinach not more than 20 mg. of oxalic acid were excreted by the urine, which is an amount not in excess of the normal average, so that there is no such thing as alimentary oxaluria. Moreover, there was no consequent increase of uric acid excretion. In dogs fed with meat and bread, the addition of oxalate of lime caused no oxaluria; after doses of 0·2 g. of oxalate of sodium there was some oxalic acid, which disappeared the next day. Obviously some part of the acid became combined with lime in the alimentary canal, and was thus rendered insoluble. After the subcutaneous injection of 20 mg. sodium oxalate, numerous crystals of oxalate of lime were observed in the urinary sediment.

H. Kisch. *Zur Kenntniss der Oxalsäureausscheidung bei Lipomatosis universalis. –Berl. klin. Woch.*, xxix., 1892.

Kisch has sought by careful quantitative estimations to support the hypothesis that in obesity the excretion of oxalic acid in the urine is increased. He examined the urine of nine cases, and found that in only one was the normal amount (15–20 mg. per litre) exceeded (40 mg.); in four it was equalled, and in other four it was not reached. After the employment of the Marienbad treatment for obesity in a case of diabetes, the oxaluria and the glycosuria diminished together.

W. Cohnstein. *Ueber die diuretische Wirkung des Theobromins.—Berl. klin. Woch.*, 1893, p. 91.

Cohnstein, from pharmacological experiments on rabbits and cats, arrives at the following conclusions respecting this drug.

1. No rise of blood pressure could be proved to follow its use.
2. No constant effect on the pulse-rate was observed.
3. No influence on the energy of the heart's contractions was ever noticed.
4. In large doses there was finally a gradual sinking of the pressure, occasionally of the pulse-rate, the causes of which require further investigation.
5. Theobromine does not appear to exert any distinct influence in physiological doses on the blood vessels or heart of mammals. Its diuretic action must therefore be attributed to direct stimulation of the renal secreting epithelium.

Nicolaier. *The treatment of Diabetes Mellitus by Salol.—Therapeutische Monatshefte*, 1893, Heft 3, p. 102.

Nicolaier reports seven cases of diabetes treated by salol in doses of thirty grains thrice daily with varying results; in some no influence could be observed, in others the symptoms abated to a greater or smaller extent. The drug is best administered in cachets, and sometimes produces tinnitus and gastric pain, rarely vertigo. Albuminuria and nephritis contra-indicate its use.

ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION AT NEWCASTLE-ON-TYNE.

THE Annual Meeting of the British Medical Association at Newcastle-on-Tyne was a complete success, gratifying alike to visitors and hosts; but it brought out more strongly than ever the weak points in the organisation of these meetings, and the need there is for some reform. The general meetings, at which the most burning questions are often discussed, and where matters striking at the very basis of the Association may be raised, were attended worse than ever during the progress of the special business. It may be that this was because very few were interested in these questions; but it appears more likely to be the case that general meetings are not places in which it is possible to get a fair representation of professional opinion.

These remarks are especially suggested by the utter collapse of the movement to obtain the payment of the travelling expenses of the representative members of the Parliamentary Bills Committee. It will not be forgotten that the greater part of the time of the annual meeting of our local branch was taken up by a discussion on this subject, so much time, indeed, that the president was not able to read his inaugural address; and, although no vote was arrived at here, no fewer than seven branches have recorded a decision in favour of such payment. Yet at the annual meeting at Newcastle the previous question was carried by an overwhelming majority in a very small gathering of members. Such a conclusion cannot be regarded as satisfactory to either side. The real weakness of the Association is not in its theoretical organisation, but in the way in which it is worked. The reform carried ten years ago placed the government of the Association on a proper democratic basis, the council being constituted mainly of representatives of the branches elected by ballot. Such representatives, if properly elected, should have the confidence of their constituencies, and questions such as this might be safely left to their consideration in the council of the Association. It behoves would-be reformers to bestir themselves in their branches, and to secure proper representation on the council, if they consider that their views are not already properly expressed there. It is useless, and more than useless, it is dangerous to the stability of the Association and truly unconstitutional, although sanctioned by the bye-laws and by custom, to bring up such questions at the annual meetings of the Association. We in Birmingham have nothing to reproach ourselves with on this score; but there are many districts in which the Branch annual meetings are badly attended, and there is too much reason to fear that the representatives on the council are merely the nominees of a small clique which does not represent in any adequate fashion the opinion of the members in the district. Another undoubted evil is that there are too many branches, and that the council is getting too large for anything like deliberative control of business.

But to revert to the Annual Meeting: the first feature of the meeting was a dinner given by the President on the evening of Monday, July 31st, to the Council, distinguished visitors and local workers in the Assembly Rooms, a beautifully arranged suite of rooms at Barras Bridge, the new part of Newcastle. This dinner, which took the place of the smaller private dinner usually given by the President to the Council, was attended by the Mayor, Sheriff, and Aldermen of the city, and was a function of considerable brilliancy. A somewhat amusing incident was the protest raised against the use by Professor Gairdner of the term *school* of medicine to describe the local teaching institution; he was promptly reminded that it is a COLLEGE; a tenacity about names that recalls the old story of the man who "keepit a schule and ca'd it an acawdemy." However with such a hospitable commencement the meeting made a good start.

The first part of the official proceedings was the General Meeting at which the Report of the Council was adopted, not without a protest from one member who thought that it should not be considered in such a small gathering, and that we would do better to have the first General Meeting in the afternoon, even if the time-honoured sermon had to be displaced. But such criticism is we believe answered by what we have said above on the need for a more complete acceptance of the branches as the basis of organisation, in which case the Report of the Council would become a very unimportant piece of business.

The service and sermon by the Bishop of Durham in St. Nicholas' Cathedral at Newcastle was very well attended, but the afternoon was warm, the hour somnolent, and the Bishop inaudible except to those near him.

In the evening the President delivered his inaugural address to a large audience which included the civic authorities. Prof. Philipson has a very peculiar delivery, ennunciating his words at the rate of 80 per minute instead of the average 120. This peculiarity, while adding enormously to the impressiveness and dignity of short ceremonial speeches, is not suited to a prolonged oration, so that it is not surprising that he talked the room nearly empty. He is by no means the first President who has done this, and it is only justice to him to say that in his conduct throughout the meeting he was distinguished by great courtesy, impartiality, and dignity, and it was quite easy to see that he made a most excellent impression and was deservedly popular with the members present.

Of the professional addresses, that on Medicine, by Dr. Drummond, was written so well and delivered with so much force, in spite of the sore throat from which the orator was suffering at the time, that it achieved a most decided success. The subject matter, on consideration, may not commend itself to the profession, as some may think his propositions not free from logical fallacy. Dr. Drummond pleads for the more frank acceptance of the inductive method in etiology, and, in the words of John Stuart Mill, to conclude that "what is true of certain individuals of a class is true of the whole class." The fallacy lies in the application. Causation is a very difficult relation to establish, and cannot be admitted on the mere basis of sequence. That is to say, two totally disconnected phenomena may have this relation, such as a change in the weather following the new moon, or a plague breaking out on the appearance of a comet. This is the *post hoc ergo propter hoc* fallacy Let us take, as an example of Dr. Drummond's reasoning, the relation of syphilis to locomotor ataxy. According to the figures he adopts, a history of syphilis is present in 75 per cent. of all cases; what is true of the greater part must be true of the whole; therefore, he says, syphilis is the cause of the disease in the whole 100 cases. Even if we could admit this outrageous extension of the inductive principle, it is obvious that there has been no attempt to prove that syphilis is the cause of the spinal tabes in the 75 cases in which this sequence of events is noted. The sequence of events is regarded as affording a presumption, and the frequency of this sequence strengthens the presumption; but there is no proof. A single instance to the contrary upsets such a conclusion. But Dr. Drummond is bold enough to deny the instances to the contrary, and cynically suggests that if we lived in a palace of Truth they would disappear. This is only assertion—a sort of prophetic announcement which is quite permissible in an Annual Address, but must not be mistaken for sound argument.

The other addresses were listened to with almost equal interest. Dr. Hume's exposition of modern surgery is recognised on all hands as excellent proof, if any were needed, that Newcastle occupies an important position in the forefront of the battle of Progress. Dr. Cullingworth's address is devoted to undoubtedly the most striking advance in the pathology of pelvic diseases in women ; but it appears to us to do very scanty justice to Mr. Lawson Tait, who was undoubtedly the first to preach that recurrent pelvic inflammation is due to chronic salpingitis, and may be cured by removal of the tubes. It can hardly be possible that Dr. Cullingworth has forgotten the time when Mr. Tait was carrying round his specimens and successfully overcoming, by unimpeachable demonstrations, the old doctrines of peri- and para-metritis.

The most interesting and enjoyable function during the week was the visit to Durham for the purpose of taking part in the meeting of Convocation at which the degree of D.C.L. was conferred on the Orators, on Dr. Withers Moore the Ex-President of Council, on Mr. Butlin the Treasurer just re-elected for a second term of office, on Sir Walter Foster, and on Mr. Ernest Hart. The meeting was held in the great hall of the ancient palace of the Bishops of Durham, the floor of which looked very gay, enlivened as it was by the brilliant academical dresses of the candidates and the toilettes of the ladies invited to the Warden's garden party which followed the ceremony.

Many of our readers know Durham, and it is hardly necessary to dwell on the extreme interest and almost unique merit of the beautiful Norman Cathedral, standing so nobly on the top of the high wooded bank of the river Wear which forms a rocky peninsula surrounding the Cathedral on three sides. The University has little in common with the splendid antiquity of the Cathedral and Castle, dating only from 1833. In 1657 Cromwell founded a university here which he endowed with the property of the Dean and Chapter, but this institution was suppressed at the restoration. For long, mainly an ecclesiastical college, Durham has taken a popular and important step by affiliating to itself the College of Medicine at Newcastle, which possesses all the requisites for the development of a first-class school.

The work of the Sections was very well attended and of good quality, but there must have been great disappointment to many members who were unable to read their papers. The discussions are popular and occupy the whole of the morning, but very few care to return after luncheon for the short time that remains. It is obvious that the tendency is to restrict the business more and more to certain definite lines agreed upon by the office bearers of the Section, a plan which would have our entire approval if it was officially recognised and publicly notified. As it is, the very opposite plan is suggested by the course pursued, for circulars are sent out broadcast asking for papers which it is physically impossible to crowd into the limited time available.

One of the most popular and interesting discussions was that on Concussion of the Spine opened by Dr. Bramwell of Edinburgh. This title was chosen because the speaker believed it to be a well-recognised designation of the results of railway injuries, but he fully endorsed the modern view that the condition is really identical with Brodie and Charcot's traumatic hysteria. This subject naturally brought up the whole question of expert evidence in Courts of Justice, and at the end of the discussion Prof. Clifford Allbutt moved a resolution affirming the desirability of members of the medical profession insisting upon a full and free consultation between the medical witnesses on both sides before going into Court. He said the adoption of this rule had led to the best results in Leeds, and had happily put a stop to those conflicts of evidence which unfortunately occur not seldom under the ordinary system.

On the afternoon of Thursday a large party escaped from the general meeting to enjoy the hospitality of the Corporation of Tynemouth. It was a purely enjoyable excursion, and was evidently accepted as a very welcome relief from the serious duties of attending meetings general and sectional.

The Dinner was most successful and very well attended. The reception at the Museum on Wednesday night was spoiled by the failure of the electric light; and that on Friday night was, for some reason, very poorly attended, probably because so many had left Newcastle or were tired of festivities.

The numerous excursions arranged for Saturday were by no means crowded, and some of the less conspicuous offers of hospitality were almost ignored. The weather was unsettled, but favoured most of the parties, though the one which went to the Roman Wall had a very wet time. This monument of antiquity is, perhaps, the most interesting archæological object in England, exhibiting, as it does in such extraordinary preservation, the system of fortifications by which the Romans held the valley of the Tyne secure against the incursions of those border tribes, which, after their departure, continued to harry their peaceful neighbours for at least twelve hundred years. At Chesters, which was the ultimate destination of the party, recent excavation has disclosed a perfect street of the old Roman fort, with its pavement, its open gutter running down the centre, and the houses of the soldiers ranged on either side. The party was met at Chesters by its genial and hospitable owner, Mr. Clayton, and by Dr. Hoffman, an old Birmingham student, who practised for some time at Balsall Heath, but who has succeeded in creating for himself a valuable connection in this beautiful part of Northumberland.

POSTPONEMENT OF THE INTERNATIONAL MEDICAL CONGRESS.

ELEVENTH INTERNATIONAL MEDICAL CONGRESS, ROME, 24th SEPTEMBER TO 1st OCTOBER, 1893.

17th August, 1893.

Dear Sir,

The sanitary condition which at present claims the serious attention of the inhabitants of most of the states in Europe could not fail to logically exert its influence upon the proceeding of the Ordering Committee.

The Committee could not lose sight of the absolutely international character of this meeting; it could not overlook the fact that even now, in several European States, all medical men who occupy official positions are prevented from absenting themselves from their residences, and could not neglect the prevision that unfortunately the same might happen in other countries also.

In face of this fact and of this prevision, and of the spontaneous and reiterated advice given by a large number of scientific authorities, the Committee became convinced that the initiated work could only maintain its character and reach its aim when at once postponed.

So the meeting was adjourned until April, 1894. Thus the Committee has given vent to its courteous deference for the foreign colleagues, following the impulse of a feeling of solidarity to which, in a similar case, it should have believed to be entitled to appeal to its own advantage.

I am charged by the Committee to acquaint you with this fact, to the purpose of confirming officially the postponement already announced to you by telegraph and published by the press.

In a very short time I shall have the pleasure to inform you of the new date which will be fixed for the meeting.

I hope you will approve of this deliberation, rendered necessary by events beyond control, and that you will continue to dedicate to the Congress in Rome the same amount of interest and zeal as you have before.

Yours faithfully,
E. Maragliano,
Secretary General.

THE MEDICAL SICKNESS, ANNUITY, AND LIFE ASSURANCE SOCIETY.

The tenth annual meeting of the Medical Sickness, Annuity, and Life Assurance Society was held on August 2nd, in the Students' Common Room in the College of Science, Newcastle-on-Tyne.

The chair was taken by the President, Mr. Ernest Hart, who, in a short speech, referred to the growth of the society since its foundation in 1884, and touched upon the many points of interest which the report for the past year presents.

The accounts shew that the society has attained a sound financial position, that the basis on which the business was founded is a secure one, and that the method of management is economical and safe, and the committee congratulate the members on the evidence they are constantly receiving that the objects of the society are being fully carried out, and of the great value of the benefits it confers upon its members.

The membership has increased during the year from 1,232 to 1,327, and the business shews signs of growth in all its branches.

The following statement shews the amount paid away as sickness benefit in each quarter during the last five years:—

		1st quarter, ending 30 Sep.			2nd quarter, ending 31 Dec.			3rd quarter, ending 31 Mar.			4th quarter, ending 30 June.		
Year.	Members	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
1888-89	985	390	9	0	545	2	0	560	6	6	650	6	6
1889-90	1,067	504	13	6	631	10	0	1,194	16	6	541	17	6
1890-91	1,145	607	8	6	642	9	0	825	13	6	1,184	0	6
1891-92	1,232	780	13	6	708	1	6	1.190	0	6	1,044	15	0
1892-93	1.328	662	6	6	803	12	6	922	11	6	938	9	6

The amount of sickness benefit paid in the twelve months ending 30th June, 1893—viz., £3,327—was for 1,057 weeks and 6 days, being 27 weeks and 3 days less than in the previous year. The reduction was mainly owing to the subsidence of the influenza epidemic.

Twenty claims arose from accidents which happened, for the most part, to country members whilst riding or driving, and influenza still produced no less than 49 claims; but on the whole the sickness experience was satisfactory, as the tables provided for 1,617 weeks against the 1,057 actually experienced.

With a view to meet the requirements of many of the members, it is suggested that those who have been members for five years or more shall be allowed to propose for an increase of sick benefit to £6. 6s. per week, subject to the payment of an adequate additional premium.

Arrangements are also being made by which the members may increase their annuities and assurance benefits through the agency of the society.

The society has always been noted for its economy, and in this respect stands far ahead of ordinary friendly societies. Less than 5 per cent. of its premiums is expended on management charges, although, by the Rules, 10 per cent. is set aside for this purpose. The reserves now amount to £66,369. 5s. 4d.

The report refers to the great assistance the society receives from the honorary services of its members and others, and in particular to those of its examiner, Dr. de Havilland Hall.

The society has during the year opened an office at 33, Chancery Lane, London, W.C., as the growth of the business made a more central position desirable. The late secretary, Mr. C. G. Drummond, having resigned on obtaining a Government appointment, the committee have appointed Mr. Francis Addiscott, F.I.A, to the vacant post.

A vote of thanks was passed to the officers, and also to the *British Medical Journal* for the valuable services it has rendered to the business. A vote of thanks was also passed to the chairman, both for his conduct in the chair and for his constant devotion to the interests of the society.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.—*The William F. Jenks Memorial Prize.*—The third triennial prize of five hundred dollars, under the deed of trust of Mrs. William F. Jenks, will be awarded to the author of the best essay on "Infant Mortality during Labour, and its Prevention." The conditions annexed by the founder of this prize are that the "prize or award must always be for some subject connected with obstetrics or the diseases of women, or the diseases of children," and that "the trustees under this deed for the time being can, in their discretion, publish the successful essay, or any paper written upon any subject for which they may offer a reward, provided the income in their hands may, in their judgment, be sufficient for that purpose, and the essay or paper be considered by them worthy of publication. If published, the distribution of said essay shall be entirely under the control of said trustees. In case they do not publish the said essay or paper, it shall be the property of the College of Physicians of

Philadelphia. The prize is open for competition to the whole world, but the essay must be the production of a single person. The essay, which must be written in the English language, or if in a foreign language accompanied by an English translation, should be sent to the College of Physicians of Philadelphia, Pennsylvania, U.S.A., before January 1st, 1895, addressed to Horace Y. Evans, M.D., Chairman of the William F. Jenks Prize Committee. Each essay must be type-written, distinguished by a motto, and accompanied by a sealed envelope bearing the same motto and containing the name and address of the writer. No envelope will be opened except that which accompanies the successful essay. The committee will return the unsuccessful essays if reclaimed by their respective writers, or their agents, within one year. The committee reserves the right not to make an award if no essay submitted is considered worthy of the prize.—James V. Ingham, Secretary of the Trustees. August 1st, 1893.

Obituary.

JEAN MARTIN CHARCOT.

In common with the entire medical world we have to deplore the death of the great glory of modern French medicine, Professor J. M. Charcot, which occurred on Wednesday, August 16th, at Morvan, where he had gone for the recess. He was travelling with his friends and former pupils Drs. Debove and Strauss and M. Valcrie-Radot, the son-in-law of M. Pasteur. All Tuesday he had seemed in good health and spirits, but the next morning he was found dead in his bed. Death is attributed to a cardiac affection from symptoms of which he had suffered for a year past.

The funeral service over the remains was celebrated at the Salpêtrière Hospital early on the morning of Sunday, August 20th. A large procession of the leading members of the scientific, medical, and official worlds followed the remains to the Montmartre Cemetery. The pall was borne by M. Jean and Commandant Charcot, son and brother of the deceased respectively, and M. Waldeck-Rousseau, the husband of his step daughter. The late *savant* being a Commander of the Legion of Honour, funeral honours were rendered by a battalion of infantry with their band. Conformably to the wishes of the deceased, no orations were pronounced over the grave.

M. Charcot was born in Paris on November 29th, 1825, so was in his 68th year. He took his doctor's degree in 1853, and in 1860 became *professeur agrégé*, and Physician to the Salpêtrière. In 1873 he succeeded to the chair of Pathological Anatomy in the Medical Faculty of Paris, and in 1880 he was appointed to the special chair of Neurology created for him.

It is not too much to say that the great advance in our knowledge of diseases of the nervous system, which is the most obvious fact in the progress of medicine during the latter half of this century, began with Charcot, was initiated by his labours, and must always be indissolubly connected with his name. He was among the earliest workers who succeeded in giving an intelligible description of the minute morbid appearances met with in the nervous system; and one of his earliest triumphs was the discovery of the ganglionic degenerations which determine the group of symptoms now known as bulbar paralysis from the recognised seat of the lesion, but formerly described by the polysyllabic name of labio-glosso-laryngeal paralysis. It is not necessary to do more than mention his work on multiple miliary aneurisms as a source of cerebral hæmorrhage, published in collaboration with Professor Bouchard; his lectures on diseases of the liver and kidney, and of old age; because these, which would suffice as a basis for the reputation of most men, are so entirely eclipsed by his lectures on nervous diseases, into which he put all his vast learning and experience, all his correctness of thought and expression, all his great qualities as a thinker and teacher. They are in part well known to English readers through the several volumes translated and published under the auspices of the New Sydenham Society; but these contain only a portion of this monumental work.

Like all great teachers, he lives not only in his writings but in his pupils, the true sons of his intelligence and heirs to his knowledge—Richet, Bourneville, Feré, Déjerine, Debove, Hanot, Pierre Marie, and others—who have under his inspiration contributed greatly to the advancement of clinical and pathological knowledge. Charcot's success at the Salpêtrière illustrates the indomitable and resistless force of true genius. This miserable institution, remote from the centre of Paris, is an asylum for chronic female patients, Bicêtre being the corresponding place for males. In its dirty and gloomy corridors are accumulated an enormous assemblage of chronic incurable diseases, in great part nervous diseases. Such cases a generation ago were looked upon as profoundly uninteresting, because they were not understood. There was no teaching in connection with the Salpêtrière, its gloom was never lightened by the influx of a number of young minds, and previous incumbents had no doubt regarded their duty there as a weary and thankless probation leading in time to the better things of the Charité, Pitié, or Hôtel Dieu. The unhappy inmates, so uninteresting to the average observer, proved truly precious when studied by this great physician. Diseases that were little known in the cliniques were met with there in groups, and lent themselves to the most perfect analysis, so that in a very few years the Salpêtrière became the Mecca towards which all students of nervous disease turned their longing eyes, and thither streamed year after year a long file of pilgrims—English and American chiefly.

With characteristic energy, in 1875 Professor Charcot started *Le Progrès Médical*, a paper conducted by Dr. Bourneville, and which is devoted almost exclusively—so far as the original articles are concerned—to the Salpêtrière school. The success that it has attained is a proof sufficient of the great vigour with which the work has been carried on, and we shall be surprised if it does not prove strong enough to live, even though the great mind and source of inspiration can no longer make itself heard in the amphitheatre.

In all that he did and all that he wrote Charcot always shewed himself to possess a well-balanced mind. He was essentially practical in his teaching and in his aims. This was in no part of his career better exhibited than in his study of the phenomena of metallotherapy and hypnotism. There are some very dull persons, wise in their own conceit, to whom the study of any mystery is an abhorrent thing. Like Mr. Pecksniff, they like to "put it away from them," and they believe that in so doing the mystery ceases to exist. On the other hand, it may be frankly conceded that such studies are not free from danger, and that instances are not unknown where the man who begins as an enquirer becomes, by-and-bye, the dupe of his own imagination or the tricks of others, and is lucky if he escapes with untarnished honour. The names of Mesmer, Elliotson, and we fear of Luys, come to one's mind in this connection All the more, therefore, should we honour the courage and magnanimity which enabled Charcot to brave these dangers unhurt, and to serve the cause of truth by demonstrating the substratum of reality, and distinguishing it clearly from the atmosphere of fiction, which makes up the picture of these subjects as presented to the public. It may be thought that Charcot went too far in encouraging Dr. Burq; but to the writer of this obituary, who followed the matter very closely at the time, it seemed that Charcot was only scrupulously fair to him, and gave him credit for all facts which told in his favour, reserving, of course, his opinion as to their explanation. After all, it does not seem to be supernatural, or opposed to natural laws, that weak magnetic or galvanic currents should affect the nervous system of hysterical patients. Assuming that that was the result of Charcot's experiments, it need not alarm the most sensitive materialist.

In the death of Charcot we have to mourn the loss of the greatest physician in France, perhaps the greatest in the world. But while we sorrow to know that his personal work is ended, and that he has entered into the eternal silence, we believe his immortal spirit is diffused through his writings, diffused even more actively among his pupils, and we have a sure and lively hope that the department of knowledge for which he did so much will continue to grow in an ever-widening stream through the dim vistas of the future.

PUBLISHERS' DEPARTMENT.

New Inventions, Drugs, etc.

Kutnow's Carlsbad Effervescent Powder.—We congratulate the proprietors of this excellent and useful preparation on the successful result of the harassing litigation to which they have been subjected by the illiberal action of the municipality of Carlsbad in opposing the registration of their trade mark on the ground that the use of the device of the rock and chamois might lead people to believe that they were buying the salts of which the municipality are the sole proprietors. In dismissing the appeal of the municipality with costs, Mr. Justice North said "he considered Mr. Kutnow's conduct had been perfectly honest, and that he saw no reason, though the municipality might have been able for the present to stop his procuring material from Carlsbad, for supposing that Mr. Kutnow would use the trade mark for an improper purpose. The mark described the powder as improved and effervescent, and this was true, for it contained an addition which disguised or took away the nasty taste of the natural spring, and it was effervescent, a quality that the natural salts did not possess." We may add that from personal experience we can confirm the above remarks, and we feel sure that the powder deserves to be very popular for use as a mild aperient and stomachic alterative. We should like to suggest that the sealing wax on the stopper, if not absolutely necessary, should be discontinued.

Izol.—We have received a sample of a new antiseptic, "Izol," which promises to be of considerable value. What its actual composition is we do not know, but understand that it is produced as a by-product in some manufacturing process. The material is sent out as a thick white fluid, which in the winter may become congealed. It has a pleasant odour of a tarry nature, and feels like a non-irritating emulsion when the hands are immersed in it. It is said to have great value as a general disinfectant, but we are chiefly concerned in it as a possible substitute for carbolic acid or perchloride of mercury in surgery. The advantages claimed for it in this field are that it is non-poisonous, that it does not irritate the tissues of the patient or the operator's skin, and that in solutions of 1 in 200 it is as rapidly destructive to germ life, such as the staphylococci or streptococci, as is carbolic acid solution 1 in 40. This is the report of it from the experiments of Dr. Klein. Its clinical value has been tested by Mr. Bruce Clarke, who believes it to be of real value, and, so far, our own observations, which however are not extensive, confirm this. The one disadvantage about it is that it does not make a clear but a milky solution, which obscures instruments, etc., placed in it.

L.G.B. "SOLOIDS" OF CORROSIVE SUBLIMATE. — Messrs. Burroughs, Wellcome, and Co. are now supplying compressed tablets for making the Local Government Board solution of corrosive sublimate for disinfecting purposes. Two soloids are to be dissolved in a quart of water, and this may be employed for the purposes of the sick room, for disinfecting soiled handkerchiefs, sheets, and the like, as well as for scrubbing floors. We have no doubt that the profession and the public will adopt very gratefully this useful and opportune invention.

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THE

BIRMINGHAM MEDICAL REVIEW.

OCTOBER, 1893.

ORIGINAL COMMUNICATIONS.

NOTES ON FRIEDREICH'S DISEASE.

BY T. STACEY WILSON, M.D.
PHYSICIAN TO THE GENERAL HOSPITAL.

FRIEDREICH'S Disease (or, as it is also called, Hereditary Ataxia) is sufficiently uncommon to make it desirable that contributions to its symptomatology should still be made, and I therefore propose to review four cases of this disease which I have had under my care during the last few years. I need not deal at all fully with the symptoms in general, since they are to be found in all the text books, and since there have been of late several excellent summaries of our knowledge on this subject, among which I would mention an article by Dr. Ormerod, in *Brain* for 1888-89, and a translation by Dr. W. Dudley of a lengthy paper by Dr. P. Ladame, in *Brain* for 1890, to which latter is appended a very complete bibliography containing more than a hundred references to papers on this subject.

In connection with my cases there are several interesting points to which I would refer.

Firstly, as to the rate of progress of the disease, which is usually considered to be very slow.

Case 1 shews us that in the course of two years and eight months the progress can be so rapid that most of the typical symptoms are well developed. This is altogether unusual, so far as I can ascertain, and, together with the fact that the knee-jerks could occasionally be obtained, might possibly throw doubt upon the diagnosis. Any doubts are however absolutely set at rest, not only by the other symptoms present, but also by the fact that an older sister of the patient (Case 2) has the disease in a typical form, as is shewn in the tabular summary of the cases which follows.

Another point of interest about Case 1 is the fact that there was some slight tendency to hypertonicity of the extensors of the thigh and foot, but especially the latter, and that the choreiform movements were so pronounced as to amount to a coarse tremor, similar in some respects to that of insular sclerosis. These motor symptoms are in excess of what is generally seen, there being usually loss of knee-jerk and only *relative* over-action of the calf muscles causing talipes equinus or equino-varus. If, however, we turn to the known pathological changes in the cord in this disease, we find it consists not only in a combined system of degeneration of the columns of Goll and of Burdach (incomplete), but also of the direct cerebellar tract, with atrophy of the cells and fibres of Clarke's column and of the crossed pyramidal tract, the degeneration usually being most marked in the lower part of the cord. In spite, however, of the degeneration of the pyramidal tracts, there are, as a rule, no spastic symptoms, unless, indeed, the relative over-action of the calf muscles, the extensor hallucis, and the invertors of the foot may be regarded as such. In a case like this, however, where the disease has progressed very rapidly, it seems to me quite right to expect some definite symptoms from the disease of the lateral columns. For this same reason I consider Case 4 as, in all probability, a case of Friedreich's disease, in spite of the fact that he has knee-jerks present (increased on one side) and a well-marked tendency to extensor spasm of the legs. These symptoms, albeit but in slight degree, are recognised as characteristic of the disease, and I prefer to believe that in exceptionally rapid cases we may get them well marked.

In Case 1 the knee-jerk was very uncertain, and the attempt to elicit it gave the impression that the afferent channel must be almost blocked by the sclerosis of the posterior columns of the cord, and that only under very favourable circumstances could the afferent impulse reach the centre so as to produce a reflex. When, however, it did, the reflex was well marked, owing, presumably, to the disease of the lateral columns.

Another point is very well brought out in these cases, and that is the weakness of the muscles of the back and neck, together with a tendency to choreiform movements or tremors of these same muscles. Now these are the muscles which are normally kept tonically contracted by the action of the cerebellum when the body is erect, and it seems to me probable that we may associate the weakness and irregular action of these muscles with the degeneration of the ascending cerebellar tract and the cells and fibres of Clarke's column. May we not express it thus: that in Friedreich's disease our patients suffer from cerebellar ataxia due to interference with the afferent fibres to the cerebellum, whereas in locomotor ataxia they suffer mainly from an ataxia due to interference with the afferent channels for common and muscular sensation. The muscles which are usually kept in a state of tonic contraction by the action of the cerebellum would, on the disturbance of the regulating mechanism as above suggested, act irregularly, producing the unsteadiness from which these patients often suffer when either walking, standing, or sitting. Such a condition of unsteadiness was exhibited in Case 1.

These cases illustrate well the difference which exists between the ataxia in this disease and that in locomotor ataxy—a difference which is pointed out very clearly by Dr. P. Ladame *(loc. cit.)*. In the first place, the ataxy here is general instead of being localised, as is usual in locomotor, to the legs more especially. Further, the character differs in that the movements here are, as a rule, much less sudden and spasmodic than in locomotor ataxy. The effect of closing the eyes in the two diseases brings out a striking difference. In locomotor a patient, who was previously fairly steady, suddenly becomes unsteady, for he was relying upon his eyes to make good the defects in the conduction of sensory impressions from his legs, and when he loses the sense of sight he uses his knowledge of the position of his limbs, and, if standing, will lose his balance. In Friedreich's disease, on the other hand, sensation is perfect, and the muscular sense often seems to be so, and therefore the closure of the eyes does not leave the patient so helpless, although it sometimes, as might be expected, interferes with his power of telling how much he is swaying, and so destroys his equilibrium. There is occasionally evidence of some degree of interference with the sensory impressions from the limbs in this disease, although the common sensibility is never affected. Thus patients sometimes experience increased difficulty in localising the position of their limbs when the eyes are shut, and in Case 1 distinct evidence of interference with the sense of posture of the limbs was obtainable.

The character of choreiform tremulousness of the limbs, as compared with that of insular sclerosis, will be discussed later on when dealing with Case 1.

An interesting symptom occurs in Case 3—viz., glycosuria. This has not been noted in any other case so far as I know, although one of Friedreich's original cases suffered from polyuria and various vasomotor disturbances. This is of interest, in view of the relationship of the posterior portions of the cord to the floor of the fourth ventricle and the vasomotor centre.

The electrical reactions in the extensor muscles of the limbs in all four cases were sufficiently constant to be worth noting, and it will be interesting to ascertain in future cases whether this is not one of the clinical features of this disease. I refer to the association of normal or slightly diminished Faradic excitability with markedly diminished galvanic excitability, and the occurrence of A C.C. before K.C.C. This association of reactions was obtained in Case 1 in most of the muscles where a reaction to galvanism was obtainable, but especially in the extensors. In Case 2 it was present in the extensor group on the left forearm, and in Case 3 in the same muscles of both arms, and in Case 4 in the anterior tibial muscles of the right leg.

I now give a more detailed account of the four cases, and I append a tabular summary of their leading symptoms.

NUMBER OF CASE ...	I.	II.	III.	IV.
Age of Patient	$3\frac{9}{12}$	8	10	10
Duration of illness in years	$2\frac{8}{12}$	6	5	$\frac{8}{12}$
Inco-ordination of legs and ataxic gait	+	1	*	+
Weakness of legs	1	1	+ +	0
Inco-ordination of arms	+	–	1	–
Weakness ,, ,, ...	1	–	1	0
Inability to stand steadily	+	1	+	1
Choreiform unsteadiness or coarse tremor if walking	+	1	*	1
,, ,, of arms	+	–	0	0
,, ,, of head	+	–	–	–
Difficulty of articulation	+	+	+	1
Nystagmus (slow movement)	?	–	1	1
Spinal curvature { Lateral	0	0	1	0
Spinal curvature { Antroposterior	1	–	0	–
Weakness of back muscles	+	1	+	1
Paralytic deformity of foot	1	0	1	0
Weakness of dorsiflexors	1	–	+	–
,, of extensors of toes	1	0		
Inversion of foot	1	1	+	0
Drawing up of great toe...	–	1	1	1
Abolition of knee-jerks	0	1	1	0
Increase of inco-ordination when eyes are closed	+ or 0	–	1	1
Cutaneous sensibility perfect	1	1	1	1
Pupillary reflex normal	1	1	1	1
Sight normal	1	1	1	1
Absence of lightning pains	1	1	1	1
Sphincters normal	1	1	1	1

Explanation of Signs.— 1 means "present," – means "slight," + "considerable," ? "doubtful," 0 "absent."

* Patient cannot walk on account of muscular weakness.

The first two cases to which I shall refer are sisters, named Lizzie and Ada B., the younger of whom I shall take first, as her symptoms were better marked.

Ada B., aged 3¾ years, was admitted to the General Hospital in July, 1890, under Dr. Wade, during whose absence the case came under my own care. Her family history shews some nervous taint, since her mother is nervous and used to have hysterical fits, and two of her maternal aunts and her maternal grandmother were similarly affected. Her grandmother is however alive and well, and aged 65. Her two maternal uncles suffer from asthma. On her father's side two uncles died of consumption. The only case of definite paralysis is that of her mother's grandfather, who was "paralysed" for three years before his death. The family consisted of six children, two boys and four girls, of whom the first died in infancy of "thrush." The two boys are alive and well, and were aged respectively (at this time) 10 and 1, as is also a sister aged 7. Of the other girl, Lizzie, aged (at this time) 6 years, we shall speak later on.

The previous illnesses of our patient include whooping cough, two years ago—*i.e.*, when she was 1 year and 9 months old—followed by scarlet fever; and these may have some etiological bearing upon the rapidity with which the symptoms developed, since there seems to be some connection between the exanthemata or typhoid fever and the onset of the symptoms of Friedreich's disease.

Her present symptoms first shewed themselves when she was about 13 months old. By this time she had begun to walk; but a fortnight after commencing to walk she seemed to lose all power of doing so, and remained unable to walk at all for some months. She was suffering from teething at the time. Since this time she has never been able to walk alone without falling. Her mother first noticed twitching of her face and tremor of her head about eight or nine months ago, and it was not until quite recently that tremor of the hands and arms has been evident The mother knows of nothing that would have been likely to cause the child's illness.

On admission to hospital the child seemed well developed and fairly fat; there was no muscular wasting or evident paralysis. Her appearance was most striking, and her manner of walking vividly recalled the classical description of the patient "hurrying after his centre of gravity" which is characteristic of paralysis agitans. When standing or walking her head hung down, and she had a forward stoop owing to weakness of the muscles of the neck and back. Her mouth was kept half open, owing to a peculiar lack of tone of the muscles of the jaw. Her arms were held forwards as if ready for a possible tumble, with the forearms semiflexed and pronated, and the hands hanging limply down. Her knees bent inward and tended to knock against one another, and the feet were kept inverted so that the toes often dragged along the ground. In walking, the feet were planted in an uncertain sort of way, and accompanying every voluntary movement there was a jerking tremor. This tremor involved the whole body, but most markedly so the head and arms, and was accompanied by swaying movements due to difficulty of co-ordination. It was a clinical picture that could not easily be forgotten, and would be easily recognisable when seen again.

The child was shewn before the Midland Medical Society on October 22nd, 1890, and I have recently learned that she died of measles in March or April, 1891. The mother was at the time living in the country, and no *post mortem* examination was made.

On careful examination, it was found that most of the classical symptoms of Friedreich's disease were present in spite of the extremely short (two years') duration of the complaint.

Nervous System.—Sensation and the special senses seemed perfectly normal, although testing the sensibility was rendered very difficult by the fact that it was extremely difficult to keep her attention fixed upon anything for more than a second or two. Of the superficial reflexes the plantar alone appeared to be absent. The knee-jerks were very difficult to obtain, and could not be got unless the insertion of the ligamentum patellæ was struck with great accuracy. When this was the case a well-marked knee-jerk could sometimes be obtained. On attempting to elicit ankle clonus, a few responsive jerks could sometimes be obtained. The attitude of the feet in walking and the condition of the gastrocnemii also suggested a slight degree of hypertonicity of the calf muscles. There was also some tendency to spasm of the extensors of the great toes as well as of the muscles supporting the instep. This was sometimes so well marked that the feet were drawn into a position of talipes equino-varus by the combined action of these muscles and those of the calves.

As regards voluntary motion there was no definite paralysis, although well-marked muscular weakness was present. This weakness specially involved the muscles of the spinal system—*i.e.*, those which may be considered under the domain of the cerebellum. The movements over which the cerebrum has more exclusive control seemed much less affected. Thus, while the power of the arms and legs seemed fairly good, the back was very weak, as shewn by the forward stoop when walking and by the fact that she could not sit up in bed without her head and shoulders drooping forwards somewhat in a crouching attitude. Also when rising from stooping she sometimes could not perform the last part of the process and raise her body to an erect attitude, but supported herself by her hands resting upon her thighs. The voluntary power of the muscles of the jaw was good, in spite of the want of tone before spoken of. This want of tone was so extreme that the teeth were always kept a short distance apart, and could at any time be made to rattle together by tapping her under her chin. It allowed her saliva to constantly dribble from her mouth.

Inco-ordination.—The most marked feature in connection with all her movements was the tremor which accompanied them. This was rather more marked than is usually the case in this disease, and partook of the character of that of insular sclerosis. The resemblance was further increased by the fact that the tremor was most marked when an action taxed the skill or power of the patient considerably. Thus it was well seen when she attempted any complicated movement, or when she tried to get some object that was nearly out of reach. It was also very well seen when the patient was trying to walk without assistance, or when she endeavoured to raise herself from a stooping to an erect attitude. It further resembled the tremor of insular sclerosis in that it ceased when the patient was completely at rest. It differed from it in that the tremor did not continue increasing in amplitude and violence while the effort lasted. Thus, although her hand trembles when she first takes hold of a glass of water, the tremor does not increase to any marked extent as she carries it to her mouth, as would be the case in insular sclerosis. The tremor seemed to be in part due to inco-ordination, and was sometimes increased when the eyes were shut. There seemed to be at times considerable interference with her sense of posture of her limbs, since she sometimes could not find her way to her mouth with her eyes shut, but her finger would strike her chin or her upper lip, and from there she would feel her way to her mouth. At other times the tremor and inco-ordination were not increased by shutting the eyes. It was not possible to test her muscular sense. With regard to Nystagmus, there was none present with ordinary movements of the eyes, and owing to the difficulty of fixing her attention she could not be got to look fixedly at any one spot; otherwise it is probable that slow movements of the eyes, similar to those noticeable in her sister, would have been observable.

Speech.—Her speech was much affected, she could with difficulty be got to say anything—mostly on account of shyness—and when she did speak the words were so ill-pronounced as to be almost unintelligible. She clipped her syllables and dropped words very much; in fact she eliminated the sounds which require the most exertion for their production, *e. g.*, "wāng-o ba" for "wan(t to) go ba(ck)." The words were distinct and not run together, but the speech was not "scanning," as in insular sclerosis. She could make herself understood at home. Both her intelligence and her memory seemed fairly good, although her shyness, and the fact of her mouth being always kept open, did not give that impression. On returning home after being at the hospital she used to recount to her parents and brothers and sisters all her experiences, and could tell them the names of the doctors and nurses. Her mother stated that she was very quick at remembering what was said to her or in her hearing. On one occasion nevertheless when in hospital she forgot her mother after an absence of three weeks.

She was of a bright and happy disposition and was very easily pleased, but she was very wanting in the power or the willingness to fix her attention on anything when desired to do so.

With regard to the electrical excitability of the muscles there was distinct diminution in their reaction to galvanism, and the extensors reacted less than the flexors. It required a current of twice the usual strength to produce a reaction, and then A.C.C. preceded K C.C., a condition similar to that existing in certain of the extensors in all three of the subsequent cases, in whom it was accompanied by a fairly well-marked or a good reaction to Faradism.

Case 2. Lizzie B., sister of Case 1, admitted to the General Hospital July, 1892, aged 8 years. She has never been strong, and, as a child, was very backward, not learning to talk or to walk till she was 3 years old. She never cared to play about with other children. She never could walk properly, but has not been getting worse in this respect of late—in fact she has improved. Her speech has not improved of late, and is much the same as it ever was. She had scarlet fever when 2¾ years old, and was much worse after it, her mother says. She also has had measles, mumps, and whooping cough. She is a well-developed but rather thin child, and has somewhat similar symptoms to those of her younger sister, though not nearly so pronounced. Thus, when walking she has a forward stoop and an unsteady gait, and her feet are kept somewhat inverted and the toes are apt to catch on the ground. There is also a slight degree of tremor perceptible.

Nervous System.—No sensory disturbances found (muscular sense not noted). The reflexes, including the pupillary ones, were normal, with the notable exception of the knee-jerks, which were absent, and also of the right plantar reflex, which was diminished. The motor power in the arms and legs was fair, although the muscles of the limbs were poorly developed. The muscles of the back were, on the other hand, distinctly weak, as shewn by the forward stoop when walking, and also by the fact that when standing erect she held her head and shoulders much too far back, and was rather apt to lose her balance backwards in consequence.

Inco-ordination.—There is well-marked inco-ordination on voluntary movement, accompanied by tremor, more especially if the muscles are taxed nearly up to their full power. Thus, although she can go up stairs fairly easily, the more delicate co-ordination required on descending is almost too much for her. She has difficulty in planting her feet correctly on the steps, and the effort is accompanied by a somewhat coarse and irregular tremor, involving the arms and head as well as the legs. The tremor here seemed somewhat more evidently connected with the inco-ordination than in her sister, and it was less rhythmical and more jerky. There is also well-marked inco-ordination of the arms on voluntary movement, and this is slightly more marked when the eyes are closed. The same irregular tremor accompanies movement of the arms as that above noted. The gait is distinctly unsteady, she sways about a good deal, and is apt to fall forward from catching her toes on the ground. She can manage to walk alone. She was slightly more unsteady with her eyes shut or when walking with bare feet, and was especially unsteady when turning round. When standing, she keeps her feet wide apart and sways a good deal from side to side. The great toes are drawn up in a characteristic way when walking or standing, but there is as yet no contracture and no deformity of the foot. There is no true nystagmus, but there are at times some slow jerking movements of the eyeballs.

Speech.—Her speech is very indistinct, on account of her inability to articulate many of the consonant sounds and the preference she has for using one or two of them, especially the dentals *t* and *d*. She frequently uses the labials *p* and *b*, but mixes up her consonants a good deal, and, unlike her younger sister, often fails to make herself understood at home. She also clips her syllables and abbreviates her sentences a good deal. Her intelligence and memory seem normal, but she is rather self-willed.

The reaction of her muscles to electricity is good, so far as Faradism is concerned, but reaction to galvanism was diminished and difficult to obtain on account of the pain caused by the current necessary. It could not be obtained in the extensors of the right and the flexors of the left thigh. In the flexors and extensors of the left wrist and fingers A.C.C. occurred first, and K.C.C. could be scarcely, if at all, obtained. The left biceps and triceps did not react well. The other groups of muscles reacted fairly well.

Case 3. Mabel H., aged 10, admitted to the General Hospital, May 21st, 1892, and died June 27th, of diabetic coma. The family seems a very healthy one, except that an aunt on her father's side died of consumption. Her mother's family are "not very strong," but there is no history of consumption or nervous disease. There are two brothers and a sister living, and one brother died aged 16 months, after measles; he used to have convulsions. Of the living ones, two are rather subject to bronchitis, and the other is quite strong and well. Of the former, her eldest brother, aged 12, speaks rather slowly, but has no sign of inco-ordination. The patient herself was perfectly strong and active till the age of 5 years, and she was moreover "plump" and well nourished.

The present symptoms commenced gradually and without any apparent cause. The first thing noticed was unsteadiness in walking and that she moved her legs about irregularly when walking. With this there was difficulty in speaking, consisting mainly of slowness and hesitation, but no stammering or lisping. To this has been lately superadded a certain amount of clumsiness of the hands. Her parents have not noticed any choreiform movements. She can sit quite still. Her legs have become very weak of late and she has been unable to walk for some months, and can scarcely stand now even with assistance. She has also emaciated considerably, but this is general and no doubt due largely to the glycosuria from which she suffers.

Nervous system.—Sensibility normal. Superficial reflexes normal (except the gluteal, which is absent). Knee-jerks absent. Pupil reflexes normal, but pupils are rather dilated. She has now very little power in her legs which are kept inverted with the heels drawn up by the almost unopposed action of the calf muscles. The great toes are also drawn up. The arms are decidedly weak, and there is inco-ordination as well, which is increased when the eyes are shut, but there is no tremor. There is however some unsteadiness of the head at times. The back muscles are decidedly weak, and there is well-marked lateral curvature. The electrical reactions in the legs are unobtainable although the muscles respond to pinching, with the exception of the extensors of the left leg which did not respond. In the arms the reaction to Faradism was good with exception of the extensor groups of both forearms, and in these same muscles the reaction to galvanism was rather delayed on the left side, while in both forearms A.C.C. preceded K.C.C.

Case 4. Thomas P., aged 10 years, was brought to hospital in April, 1892, for "St. Vitus Dance." No family history of nervous disease, except that a sister had a passing attack of chorea. Patient has had no serious illnesses—never measles or scarlet fever. He was quite well till August, 1891, and then, after a fortnight's absence, his parents noticed that he was unsteady on his legs, and that the least thing would knock him down. He soon became clumsy with his hands, and about November it was noticed that his speech became slow and drawling. He also became irritable and fretful, and was at times silly in his talk.

On admission the boy was well nourished, with no muscular wasting. On the contrary, there was some hypertrophy of some of the scapular muscles, especially the infra-spinatus and teresmajor. There was however no weakness of any muscles in this region, and no hypertrophy of the calf or other muscles. There was distinct weakness of the muscles of the back, as evidenced by his slight stoop when walking and by his attitude when standing, and by the slowness with which he regained an erect attitude when getting up from a recumbent posture. When standing, he holds his head and shoulders so far back that a vertical line falls four inches behind the sacrum. He sways to and fro a good deal when standing, in spite of keeping his feet wide apart. His unsteadiness is increased somewhat when his eyes are closed. His knee-jerks are increased, especially the right, which can be got on percussion above the patella, when the leg is straight. There is no ankle clonus, but the irritability of the calf muscles is a little increased. There is also a slight tendency to general extensor spasm of the legs, especially on the right side. These features make themselves evident in the gait, which has a little of the spastic character superadded to the typical choreiform unsteadiness.

He improved slightly during his stay in the hospital, and on leaving, there was no inco-ordination discoverable in his arms, and he was also rather steadier on his feet. The electrical reactions were similar to those of the other cases. Slight diminution of reaction to Faradism in the legs, especially in the right one, together with general diminution of the reaction to galvanism, especially in the anterior tibial muscles of the right leg, where A.C.C. preceded K.C.C.

In conclusion, I must express my indebtedness to two former resident medical officers at the General Hospital—viz., Dr. Short and Dr. Russell—for the careful notes they made of the above cases while in hospital.

THE TREATMENT OF WOUNDS.*

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THE subject of Wound Treatment is one which is ever before our minds in our practice as surgeons; it is one upon which there are many opinions. I have nothing novel to bring forward, no new antiseptic, no new gauze, or any other preparation which will alter the whole system of treatment. I intend to speak of the methods generally adopted, and then to give my own opinion upon them.

At the commencement I would emphatically say that I believe no wound can heal without inflammation, it is that process alone that causes a wound to heal. Healing by "immediate union" is an impossibility, and anyone who has any knowledge of pathology will see that it cannot take place. I know that the expression "primary union" is often loosely used when first intention is really intended. Inflammation is defined as "the succession of changes which occurs in a living tissue when it is injured, etc." It is our duty as surgeons to limit these changes as far as possible, and to see that we introduce no foreign body into a wound which will cause an increase of the inflammatory process. All clean wounds ought to heal without the formation of pus. In pure air and healthy surroundings a wound will heal of itself.

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* A Paper read before the Queen's College Medical Society.

The causes which prevent healing by first intention may be divided into two groups. 1st. The presence of micro-organisms; 2nd. The presence of any foreign body or constant irritant; to which a further class may be added, viz., the failure to keep the wounded surfaces at rest and in apposition It cannot be too forcibly insisted that in order for a wound to heal by first intention the wounded surfaces should be brought together in their natural state and maintained there without disturbance. Not only should the skin surfaces be brought into apposition but the deeper parts should be brought accurately together. Many surgeons, and good surgeons too, merely stitch the skin edges together and ignore the deeper parts That this is essential is well shewn in the operation for hare-lip and other plastic operations where early union is necessary. It is sufficient now to mention the mere fact that micro organisms (staphylococci and streptococci) prevent wounds healing. I do not intend to enter into the bacteriological side of the question, but content myself with merely stating that these bacteria produce by a process of fermentation irritating chemical compounds, which in their turn cause an increase of inflammation and finally the formation of pus.

I pass on now to the second cause preventing healing—viz., the presence of any foreign body or any constant irritant. Those of you who have had your hands in a solution of carbolic acid, 1 in 20 or 1 in 40, for some time, know to your cost how they tingle and smart. How much more so must the delicate wounded tissues of the body be affected by it; what an increase of inflammation, with resulting exudation, there will be separating the wounded surfaces and preventing that apposition of the divided tissues which is so necessary in order to obtain a good result. Think what an amount of peritonitis will be set up, what exudation there will be from the application of a 1 in 20 carbolic solution to its delicate surface. The application of a strong antiseptic to a clean wound is, with many surgeons at the present time, one of the most potent causes of suppuration, and one which is to some extent going out of fashion. There is at the present time no antiseptic known which is efficient in destroying bacilli and their spores which is not an irritant. If to a large wounded surface a strong antiseptic be applied, in order to be safe it is necessary to use a drainage tube to drain off the excess of exudation. The drain must be in the most dependent part of the wound; perhaps it will be necessary to make a counter-incision. Thus there is either the open end of the wound or the counter-opening to be healed up, thereby adding to the length of time taken in getting your patient well. If there is reason to believe that a wound is infected, it should be thoroughly irrigated by some strong antiseptic. Of what nature and strength should it be? I think corrosive sublimate, 1 in 1000, is the most efficient and reliable. Care should be taken to dry the surface well, and to leave none of the lotion behind. After this it is necessary to use a drainage tube. Good results will often follow the use of properly prepared decalcified chicken bones; they may be used more especially in those cases which it is undesirable to dress for some time, as, for example, after excision of the knee joint. Rubber tubes are practically unirritating, and accommodate themselves better to the dressings than glass tubes. I do not believe in leaving a rubber or any other kind of tube, except a chicken-bone one, longer than three days at the outside in a wound. If there is any more discharge to come out, it will generally follow in the track left by the tube. The rule should be to get rid of the tube as soon as possible, as at the best it is only a necessary evil.

Bleeding —When bleeding is controlled by the use of a ligature of catgut or silk, it is essential to see that the material used is properly prepared. It is not uncommon to see a wound which is suppurating prove, on careful examination, to have been infected by a foul ligature. On the other side, we must not forget the fact that too often this suppuration is caused by the surgeon's or his assistant's fingers. An absorbable ligature is no doubt to be preferred to all other kinds. "A perfect ligature must be sufficiently strong not to break, inelastic, round, pliable, and easily tied into a knot; not too bulky; absorbable, and not too readily so; and lastly, but most important, capable of being rendered certainly aseptic." (Ligation in Continuity. Ballance and Edmunds.) In order to answer these requirements, we must use for ordinary purposes either silk or catgut. If the latter fulfils the requirement of being absolutely aseptic, it is much to be preferred over silk. Silk in the form of Chinese twist, which has been prepared by boiling in carbolic acid (1 in 20), will remain in a wound for many weeks almost unaltered. It is not uncommon to find these ligatures coming away at a considerable period after the operation, much to the annoyance of all parties concerned.

Compression is one of the most salutary agencies in the treatment of wounds and generally in the treatment of injuries. In the words of the late Mr. Sampson Gamgee, "Compression is not constriction, this strangles and destroys, that soothes and heals. Constriction is hard, violent, and painful; compression, elastic, gradual, and comforting; nothing more soothing to an injured part, nothing more powerfully conducive to the balance of innervation and circulation; to the prevention of sanguineous and inflammatory exudation, and to its removal when it has taken place than gentle, equable, elastic compression." It is advisable to apply a certain amount of pressure to all wounds when union by first intention is desired, even if there is no bleeding to be controlled at the time. It is hardly necessary to state that every bleeding point should be securely tied. The application of hot water to an operation wound is to be condemned unless there appears to be no other means of controlling the hæmorrhage, owing to the large amount of inflammatory exudation it afterwards causes.

Wounds should be dressed as seldom as possible. The every-day dressing of a clean operation wound which is going on well is to be most strongly condemned. The way some surgeons treat wounds reminds one of the little child who sets a seed in his garden and digs it up every day to see if it has sprouted. If the temperature goes up to beyond 101° F. the wound should be dressed at once, taking care if it looks all right, to leave it uncovered as short a time as possible. If an unabsorbable drainage tube has been used it should be removed not later than the third day after the operation. If no tube has been used, and all has gone on well, at the end of the fifth or sixth day the wound should be dressed and some at least of the stitches removed. Silkworm gut, well soaked in warm lotion, will generally be found of most service as suturing material. It is strong, clean, fairly pliable and not too readily absorbed. Wounds which are not suppurating should not be syringed out or irrigated. The force used in irrigating a wound separates the wounded surfaces and so often in great measure prevents that union by first intention which it is our great object to secure. Brass syringes are a perfect nidus for germs. Much may often be done to lacerated and dirty wounds by carefully cleansing with soft soap and the nail brush; the dirty edges should be pared, and hopelessly lacerated and injured pieces of tissue removed with scissors and scalpel. The wound should then be thoroughly irrigated with corrosive sublimate (1 in 1000), but as before stated it increases the exudation and necessitates the use of an efficient drain. The treatment of lacerated wounds by a constant bath has been adopted by some surgeons. It has this advantage, that you are not cutting away any tissue which may perhaps recover, and the more one sees of lacerated parts the less one feels inclined to condemn those parts, however seriously they may be injured, as any sort of a crook is better than none at all.

The treatment of suppurating wounds differs according to their situation, character, and extent. Some operation wounds which have been treated with the greatest care, in which all aseptic procedures appear to have been adopted with the utmost rigidity, will suppurate, and whatever we may say or do, we cannot get over this fact. Perhaps it may be from blunt instruments having been used; the vitality of the tissues is lowered, and healing is interfered with. "In early life, in old age, and in atonic states, when the resistance to disturbance is lowered, in parts distant from the centre of the body, and especially when the circulation in these parts is hindered by degeneration of the arteries, healing often takes place with difficulty, and suppuration results." This power of the tissues to resist disturbance is a factor that cannot be neglected. Who will expect an amputation wound in a case of senile or diabetic gangrene to heal by first intention, however careful an antiseptic surgeon he may be? On the contrary, no danger results from attempting to secure primary union and sewing up wounds in such cases, if extra precautions are taken to prevent infection. In some wounds we must have pus formed, as in fistula operations and in operations about the mouth and anus generally How common it used to be for patients to die of septic pneumonia after removal of the tongue. Now it is much less common. In abdominal operations it is better not to flush the peritoneal cavity, unless there is a good reason for it. The fluid so used should consist of either boiled water or a solution of boracic acid. Boracic acid lotion is unirritating to the peritoneum, and there can be no doubt that it possesses valuable powers of preventing decomposition, although it is of little or no use as a germicide. By no means use any other antiseptic lotion for the peritoneal cavity.

Antiseptics have been defined as "substances directed against the growth and life of those micro-organisms which cause the decomposition of animal tissues and fluids." Let me state, with Mr. Jacobson, that "no perfect antiseptic is known as yet. An antiseptic that is reliable—one that will not irritate and is not liable to poison—is as yet unknown. No use of antiseptics, however elaborate, is, *per se*, sufficient to secure success;" as unremitting attention to details as ever must be carried out. Keep your wound clean, and then the need of powerful antiseptics will not be essential in order to obtain union by first intention.

I should like here to recall your attention to the fact that Alanson, of Liverpool, a century ago stated that he had performed 35 amputations without a single death; that Syme ligatured the femoral artery 35 times with 34 successes.

As to the best antiseptic, I believe none is better and more efficient than corrosive sublimate (1 in 1000) for washing the skin before and after operations. If carbolic acid be used, it should be of at least 5 per cent., as that is the only strength of use in killing spores. Carbolic, too, is the best antiseptic for keeping instruments in during the operation. Perchloride lotion is far more preferable than carbolic for irrigation purposes. As a dressing, sal alembroth gauze may be used with safety; it is cheap, soft, antiseptic, and, from its blue colour, readily shews how far the discharges have penetrated. It is urged against it that it is irritating and causes eczema, a condition which does sometimes occur in warm weather. Blue wool does not absorb anything like so rapidly as ordinary absorbent wool. Iodoform gauze is more than double the cost of sal alembroth, and where this is of no moment, will generally be found preferable to it It has been said that in using iodoform we are only substituting one stink for another. This I do not believe. Iodoform has a most marked effect in preventing putrefaction. I have come to this conclusion after using it pretty freely for the past seven years. When iodoform is mixed with pus at the temperature of the body, the micrococci decompose it and liberate iodine, than which no stronger antiseptic can be wished. I do not believe in dusting or rubbing iodoform into a clean wound, as by doing so a foreign body is needlessly introduced, harmless in itself though that body may be. For a tubercular wound, and one which is undoubtedly infected, nothing answers better than well dusting and rubbing in iodoform. Iodoform emulsion (10·0 per cent.) injected into a tubercular cavity will often cause it to take on better ways and heal up.

The operating theatre should be kept at a temperature of from 65° to 70° F., well ventilated and well lighted. The walls and floor of such a material that they can easily be washed down. The operator and his assistants—there are very few operations which require more than one assistant—should wear a white washable gown which reaches from the chin to the feet. The nails and hands should be well cleaned and scrubbed, then soaked for a couple of minutes in corrosive sublimate (1 in 1000) or carbolic lotion (1 in 20); it is no use to merely dip them in the lotion. It is better for the patient to have a warm bath the day before operation, after which any hairy parts are shaved. Too little attention is paid to nail brushes, they should always be kept in an antiseptic solution. Before making the incision the skin around should be well scrubbed with soap and water; I prefer soft soap. After the scrubbing, again wash the surface with one of the before mentioned antiseptic solutions. Any exposed parts of the body should be well wrapped up, particular attention being paid to the chest. No blankets that may possibly get soiled should be left uncovered. The operation table may be made so that it can be warmed by hot water; in prolonged operations and abdominal sections this is to be particularly desired. Five minutes before the operation the instruments are covered with carbolic lotion (1 in 20). This may then be poured off, and plain boiled water substituted. Mops made of absorbent cotton wool and covered with gauze are better than sponges for general use. Sponges, if used, require the most careful cleansing. The mops should be kept in carbolic lotion, and wrung out before use in plain boiled water. No one, except the operator and his immediate assistant, should touch any part of the wound, or handle any sponge or instrument. No antiseptic need then be used during the operation; but after it is over and the wound sewn up, the skin may be washed over with sublimate lotion before the dressing is applied. By this method of asepticism, rather than antisepticism, results will be obtained by which all interested in the case will be satisfied and but little will be left to be improved upon, and not much will then be heard of wound fevers.

"Who would not give a trifle to prevent that which he would give a thousand worlds to cure?" --*Younge's Night Thoughts.*

NOTE ON THE EMPLOYMENT OF CALCIUM CHLORIDE AS A HÆMOSTATIC.

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In a recent number of the *British Medical Journal* Professor A. E. Wright, of Netley, published a very interesting paper* in which he described a simple method of testing the relative coagulability of the blood by drawing it into capillary tubes and noting the time in which it clots in the tube so as not to be expelled by blowing, and further related the results obtained by this method in a case of hæmophilia treated by calcium chloride. I may briefly recall that he shewed the normal coagulation time to be between 4′ 50″ and 5′, its prolongation in hæmophilia to be 12′ to 14′, reduced after the administration of one gramme of calcium chloride three times a day to 5′ 15″ or 5′ 30″; but unfortunately his experiments were brought to an end by the departure of the patient.

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* On a method of determining the Condition of Blood Coagulability for Clinical and Experimental purposes, and on the effect of the administration of Calcium Salts in Hæmophilia or in actual or threatened Hæmorrhage. By A. E. Wright, M.D. Dubl.—*Brit. Med. Journ.*, 1893, vol. ii., p. 223.

In the course of the last few months I have used calcium chloride occasionally as a hæmostatic agent, and the publication of Prof. Wright's paper led me to look up the notes of the cases in which it was employed.

The first of these was a middle-aged woman with chronic jaundice of six months' duration, believed to be due to an impacted gall-stone. She suffered from pretty free hæmorrhage from the rectum, apparently proceeding from some internal piles, but the bleeding was decidedly more than we should have expected from the state of the bowel. Our first efforts were directed to remove the hard fæces which could be felt in the rectum by the use of olive oil injections, and to keep up a daily action of the bowels by the administration of saline aperients; but as after fifteen days these means failed to check the bleeding, calcium chloride in small doses was administered every four hours, with the satisfactory result that after five days the hæmorrhage ceased and did not return.

The next case was even more striking, as it was that of an elderly woman admitted with purpura hæmorrhagica, that is to say she had a purpuric rash over the body and limbs, free bleeding from the gums and slight hæmaturia. The free use of ergot, gallic acid, and acid infusion of roses not having been followed by any benefit, on the third day after admission she was placed upon small doses of calcium chloride every two hours, after which the bleeding diminished, and five days later had ceased altogether, the patient making a good recovery.

In the third case, which was one of phthisical hæmoptysis, calcium chloride was used in combination with other measures, but in spite of all treatment a profuse hæmorrhage set in which carried off the patient. At the autopsy we found an aneurism of the pulmonary artery projecting into a cavity, a condition which sufficiently explained the futility of our remedies.

With respect to dose it is noteworthy that Prof. Wright found after giving one gramme of calcium chloride thrice daily for four days that the coagulability became enormously diminished, *i. e.*, to over one hour, and on certain experiments upon himself he believes this was due to the administration of calcium chloride having been carried too far, for he found that when too large a dose of the salt was added to decalcified blood *in vitro*, coagulability decreased, and on taking two grammes of calcium chloride three times a day the coagulability of his blood rose during the first twenty-four hours, returned to normal during the second, and in the third fell below normal, so that the best results may be looked for from comparatively small doses. In my cases the drug was administered in the form of the liquor calcii chloridi of the new pharmacopœia, which is of the strength of 1 to 5, and the dose employed never exceeded thirty minims or six grains, though in the case of purpura this quantity was given every two hours during the day for some days.

NOTE ON TUBERCLE OF BONE AND OF JOINTS.

BY GILBERT BARLING, F.R.C.S.

THE laborious and patient investigation, not yet finished, into the pathological and clinical problems involved in tuberculosis has evolved out of the chaos which prevailed twenty years ago a definite knowledge of its causation, its method of spread, in fact of its life history, and with this knowledge has come the power which knowledge conveys, of successful treatment. This is especially true of tubercle as it occurs in bones and joints. In the treatment of bone and joint tuberculosis a thorough knowledge of the morbid anatomy of the disease and of the manner in which it spreads in the affected parts is most important, because surgeons endeavour now to attack the disease in an early stage, so as to limit, as far as possible, the amount of tissue which has to be removed in the hope of retaining as fully as possible the function of the part, at the same time of exposing the patient to little risk from the operation, and above all, to save him from the destructive tendencies of the disease.

It is necessary to bear in mind that tubercle may occur either in the form of tubercles or tiny nodules, or as an infiltration, and nowhere does infiltration prevail to a greater extent than in bones and joints. There is in these tissues too a great tendency to caseation, perhaps more than in most parts. The absence of distinct tubercles must not be construed then as indicating that the disease is not tuberculous. Another point to which it is necessary to call attention is the great inflammatory thickening occurring around the tubercular processes, as though the bacilli had a widely irritating influence on surrounding parts, so that a few tubercles in one part of a synovial membrane may cause extensive thickening at parts that are comparatively remote.

It has for a long time been a matter of dispute as to where tubercular joint disease begins—whether in bone, synovial membrane, or cartilage. The last, I think, we may now exclude, so we have only an alternative, and the tendency at the present time is to regard tubercle of bone as the usual starting point of most tubercular joints. This is the opinion held by König, Cheyne, and Thomson, and is, in the main, no doubt correct; but the relative frequency with which the synovial membrane or the bone entering into a joint forms the starting point of tubercular disease of joints, varies with the individual joint. For instance, in the knee the synovial membrane is with some frequency the starting point of the disease; whereas in the hip, primary disease in the synovial membrane is rare, and secondary to bone mischief is correspondingly common. The question whether the joint disease commences in one or other of these tissue is governed, to some extent, by the relation of the epiphysis to the line of reflection of the synovial membrane and capsule. Obviously, if an epiphysis is entirely within this line, it is more likely to be a source of infection to the joint than if it were outside it. Compare, for example, the epiphysis of the head of the femur with that of the head of the tibia.

Synovial tubercle we find varying somewhat; but far the most important variety, because the most frequent, is that which is best described as "diffuse synovial thickening," which, usually secondary to a tubercular bone focus, may be a primary condition in the synovial membrane. The most common event is the perforation of a bone focus freely into the synovial sac, and a rapid infection of the whole interior of the synovial tissue. This "diffuse synovial thickening" may also arise from a bone focus which does not perforate into the synovial sac, but slowly extends into the outer layers of the synovial sac, where it is reflected on to the bone as at the upper margin of the knee joint. Here the tubercular focus in the synovial membrane may remain localised for a time, but eventually it spreads to the rest of the membrane. The same may be said of primary synovial tubercle; it may be localised at first, but eventually becomes diffused. These last two varieties, I believe, can at times be distinguished from the first-described.

A rare form of tubercular disease is one variety of hydrops articuli, in which, with the chronic presence of fluid in the joint, we have only slight general thickening of the synovial membrane, but pendulous outgrowths spring from the surface of the membrane. These may be very numerous, and are at times associated with rice-like bodies.

However synovial tubercle begins, it may end in tubercular abscess or cold abscess in the joint, either localised in pockets or diffused, and it may extend eventually to the tendon sheaths, etc., around the joint.

Tubercle of bone may be seen either as a periostitis or as an osteo-myelitis, or as a circumscribed caseous focus near the articular extremity of a bone, or as the condition known as caries-necrotica with sclerosis of the sequestrum. The tubercular process is essentially the same in all of these, and they merge one into the other; but, for practical purposes, it is useful to regard them as more or less distinct forms.

Tubercular periostitis, in my experience, is very selective; it attacks the bones of the skull, the ribs, and occasionally the vertebræ. Its tendency is to extend widely over the surface of the part involved, and so it may involve several inches of a rib, or several vertebral bodies, or some inches of the cranium, though here it remains circumscribed for a time, and has a marked tendency to perforate both tables. I have at present under observation a man whom I have trephined for epilepsy due to the pressure of caseous matter from a widespread tubercular periostitis, which perforated the cranium and then spread between the bone and the dura mater. I have not seen a single case in which caseation and cold abscess has not eventually supervened.

Tubercular osteo-myelitis is most familiar, as it occurs in bones such as the bodies of the vertebræ, the metacarpals, the tarsal and metatarsal bones. Here we have the disease beginning in the medulla, causing in a certain number of cases a considerable thickening of the affected bone, with perhaps a sinus leading into its centre. The disease may be diffused throughout the medulla in the smaller bones, and produces a soft caseous mass of some extent, or occasionally small crumbly sequestra, this especially in the vertebræ and sacrum. The formation of a sequestrum involving a large portion of the thickness of the shaft of a long bone, such as results from acute infective osteo-myelitis, is rare; but I have now under observation a case of tubercular osteo-myelitis of the femur in which the sequestrum was very extensive, and formed quite acutely. In this patient fully half the length of the femur was involved, and there is great thickening of the lower two-thirds of the shaft. This osteo-myelitis may extend to the end of the bone it starts in and perforate into the adjacent joint cavity, giving rise to the "diffuse synovial thickening" above described. In the tarsus this is a common occurrence, and explains the difficulty there is in treating these cases satisfactorily. Perforation into the adjacent joint may also occur when long bones are involved; and I have at present under observation two patients whose wrists I have excised, in each of whom tubercular osteomyelitis of a metacarpal bone extended to the wrist joint and infected the synovial membrane as well as the tendon sheaths around.

Perhaps the most common form assumed by tubercle in bone is the "circumscribed caseous focus" in the end of a long bone, generally close to the articular surface, though sometimes farther away from this dangerous area. Here the importance of the disease is due mainly to the tendency there is to perforate into the joint cavity and to produce a "diffuse synovial thickening." A small softened area, with a patch of caries of small extent, and a little perforation through the cartilage, almost like the hole seen in worm eaten wood, is generally the picture presented. At times these small foci are the starting point of chronic abscess in bone with its characteristic symptoms, and at other times the tubercular process advancing does so laterally, instead of vertically towards the joint adjacent, and so the latter escapes unless, as in the hip, the whole epiphysis is intra-capsular.

A very instructive case has recently been under my care at the General Hospital. A boy 10 years old was admitted with a cold abscess of some duration over the front of the knee joint, and in addition there was a diffuse thickening obliterating the natural outline of the joint. On investigation, at the bottom of the abscess a small sinus led into the patella in which was a caseous area with a little soft bone, not larger than the tip of the little finger in all From this tubercular patch a tiny perforation had taken place through the cartilage covering the patella into the knee joint, and the whole synovial membrane was vascular and thickened, creeping over the margins of the cartilages and typically tubercular. The focus in the patella had found its way in both directions, giving rise to the cold abscess externally, and to the synovitis internally. Arthrectomy was followed by complete aseptic healing.

It only now remains to say a few words about that condition which I have spoken of as Caries Necrotica with sclerosis of the sequestrum. This comparatively rare form I have seen most commonly in the os calcis, but it occurs also in the extremities of long bones where there is much cancellous tissue. Here sequestra form, varying in size, but often as large as a pigeon's egg and of unusual density, the bone before dying and separating from its attachments having undergone sclerosis. In the ends of the long bones these sequestra often being wedge-shaped it has been suggested that they are due to emboli in the vessels supplying these areas, but this would not accord with the sclerosis found in the sequestrum and it is probable that the embolic theory is not correct.

It will be noticed that I have said nothing of the condition known as "Caries Sicca." I have intentionally avoided speaking of this as a distinct variety, because I regard it as a mere accident, due to conditions unfavourable to the progress of the tubercular disease. I believe it may follow either the diffuse osteo-myelitis or the circumscribed caseous focus in the ends of long bones. The formation of a tubercular or cold abscess may occur in all forms of tubercular bone disease, especially in the periosteal, but like the condition last mentioned it must be regarded as an accident of the disease, but one that adds to its gravity.

It is impossible within the limits of this note to go fully into the question of the treatment of tubercular bones and joints; only an outline is possible. In tubercular, as in other forms of joint disease, rest holds the first position with regard to treatment, and if a word is to be said on this question, it is that the rest should be much more complete than is often the case. It is not rare to see children in bed with hip joint disease allowed to squirm about into any position they choose to take, and to give considerable mobility to the diseased joint, being only subject to such restraint as is produced by a weight and pulley extension; whilst when they are up, the Thomas' splint with which they are provided is almost a farce as a protection to the joint, simply from want of proper supervision and adjustment. Of all the means at the disposal of the surgeon absolute rest is still the most valuable in the treatment of tubercular joint disease.

Of the operative proceedings, excision and arthrectomy, each has its special place. For instance, in the hip, excision is necessary if an attempt is made to eradicate the disease, a complete arthrectomy being impossible; whilst in the knee joint complete arthrectomy is not only possible, but is more efficient than excision as usually performed, because it effectually removes *all* the disease, whilst the bone ends being but little interfered with, the operation is one of less severity. Instead of complete arthrectomy, there is much to be done by partial operations if the disease is circumscribed, and it is in this direction that advance is to be looked for at present.

When the disease is located in bone, looking to the disaster it brings if it extends to a joint, if it can be attacked without exposing the patient to undue risk, this should certainly be done. It is especially important in those bones which enter into the composition of superficial joints, such as the knee, wrist, elbow, and ankle. One constantly sees cases where uncontrollable joint mischief has arisen from a small bone lesion, which in the early days of its existence might easily have been removed.

Cold abscess may be associated either with bone or joint mischief, or with the two combined. There is never justification for interference with these abscesses if they are not extending, unless the modern operation can be carried out with precision, for not a few of these collections remain quiescent and disappear with rest in bed. If they are extending, and even if quiet but not disappearing, the case is different, if the proper treatment of erasion, flushing, iodoformisation, and complete closure can be carried out with certain asepticity. So performed, this operation gives most admirable results. If the abscess is allowed to burst or is opened carelessly, its walls are invaded by the ordinary pus cocci, and in the walls thus rendered septic the tubercular process spreads rapidly. Too often the tubercular and septic processes involve the tendon sheaths round the joint or bone and, what is worse, the planes of fascia between and around the muscles. There is no tubercular condition more difficult to extirpate than this; and to fascial invasion by the double infection we owe most of the hopeless cases of joint and bone tubercle we meet with doomed to die, or to part with a limb, despite any effort made to eradicate the disease by operation. To the prevention of septicity supervening on tubercular processes we must look for improvement in results, more than to any other development of treatment.

REPORTS OF CASES.

CASE OF CONTRACTED PELVIS. INDUCTION OF PREMATURE LABOUR.

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THE following case presents some points of interest. The patient, æt. 40, was admitted on May 8th, 1893. Last period seen on October 1st. The record of the previous pregnancies and of their terminations was a remarkable one, and ran as follows:—1st pregnancy, craniotomy at term; 2nd, premature labour induced at seventh month, boy now living; 3rd, 4th, 5th and 6th, craniotomy at term; 7th, labour induced at eighth month, child now living, but deaf and dumb; 8th, labour induced, child born dead; 9th and 10th, girls delivered alive at term, with forceps; 11th, labour induced at seventh month, child still-born.

Out of eleven labours we thus find that four were terminated by the induction of labour, with two children living; five were terminated by craniotomy, and two by the application of forceps at term, the latter being both girls and born alive. This, I venture to think, must, fortunately, be almost a unique record. The induction of labour in each case had been performed at a Lying-in Hospital, two at Queen Charlotte's, and two at the York Road Hospital.

The patient was now in the 31st week of her twelfth pregnancy. She stated that as a child she was very delicate, not being able to walk till six years old, but after her sixteenth year she became stronger and had enjoyed good health since. She was somewhat stunted in growth, but presented no obvious sign of rickets, and all her organs appeared to be in sound condition. The uterus reached two inches above the umbilicus. Fœtal movements were clearly perceptible, and the fœtal heart could be distinctly heard on the left of the median line.

The induction of premature labour was resolved on, and treatment was commenced on May 12th, a vaginal douche of hot water being given every four hours.

On May 13th the os, which previously would not admit the finger, now allowed the tip of the finger to enter, and the membranes could be felt. The douching however had not excited any pains. At 11 a.m. on this day a large-sized gum elastic bougie, previously rendered aseptic, was carefully guided by the finger into the os and gently pushed along the posterior uterine wall until it passed into the uterus to the extent of seven inches. A sharp gush of bright blood occurred on the introduction of the bougie, but this soon stopped and did not recur.

May 14th. Patient experienced slight labour pains, and the bougie was partly expelled, but was easily replaced.

May 15th. Bougie came out at 6 a.m. and was not reintroduced.

May 16th. Slight pains at intervals.

May 17th. Os dilating a little. Patient allowed to get up and walk about the ward.

May 18th. Pains during the day gradually increasing in strength, and at 5-30 p.m. child born. Placenta shortly afterwards removed by hand. Slight *post partum* hæmorrhage, which was quickly checked by washing out uterus with hot water. The labour finished rather rapidly, as at 3 p.m. the os was not larger than a florin, and membranes had not ruptured.

The child, which was a male, lived 36 hours. The mother made an uneventful recovery, and left the hospital well on June 3rd.

Remarks on the case.—In a case such as this the history of the previous labours is a more valuable guide, in my opinion, to the amount of pelvic contraction and the best method of treatment than any results obtained from pelvimetry.

The true conjugate, as deduced from measurement of the diagonal conjugate by the hand (though this could not be very satisfactorily done, as the patient was not anæsthetised), was a little over three inches; and this is what one would have estimated from the history of the case. It is usually considered that a living child cannot pass through a pelvis having a conjugate diameter of less than three inches, and in this case it evidently approached the lowest possible limit, as only two children out of eleven had been born alive at term, and these were females. The pelvis did not appear to be contracted in any of the other diameters.

As regards other methods by which this case might have been treated, the alternatives were to allow the case to go on to term, and then deliver (1) by craniotomy, (2) by abdominal section, or (3) by symphysiotomy, the latter operation being now apparently established on a firm basis for suitable cases; and this would have been one eminently suitable if the patient had been allowed to go to term, and delivery with the forceps had proved impossible. On the whole, the induction of premature labour seemed likely to offer the best prospect both to mother and child.

The amount of time which elapsed between the introduction of the bougie and the birth of the child was unusual, the text-books stating that delivery usually follows in 24 to 48 hours. In this case it was 102 hours. If the hæmorrhage which followed the introduction of the bougie had continued, the best plan would have been to treat the case as one of accidental hæmorrhage, and rupture the membranes.

For many of the notes, and for valuable assistance in the treatment of the case, I am indebted to Mr. Orton, Obstetric House Surgeon, and Mr. Chapman, Clinical Clerk.

PERISCOPE.

DISEASES OF THE DIGESTIVE SYSTEM.

BY O. J. KAUFFMANN, M.D.

Among drugs recently introduced as intestinal antiseptic remedies is benzo-naphthol, first recommended by Yves and Berlioz, and since then adopted by Ewald. The latter has employed this remedy, apparently with good success, chiefly in conditions of putrefactive decomposition of the contents of the intestine and consequent toxæmic symptoms depending upon atony of the intestinal muscular coat.

Recently, Kuhn has subjected this drug to a critical examination experimental and clinical, with the following results *(Deut. Med. Woch.*, 19, 1893*)*:—On stomach-contents and fresh alvine evacuations treated in glass vessels it exerted no effect whatever. In spite of the addition of a fair quantity of the drug, both these substances underwent the usual fermentative decomposition. Similarly, administration by the mouth failed to have any effect in controlling the evacuations in cases of diarrhœa.

A further experiment was carried out, and consisted in making a quantitative analysis of the products of putrid decomposition of albumens present in the urine—viz., the sulphates and indican—both before administration of the drug and after the same. Without giving the complete details as related by Kuhn, it may be shortly stated that no result whatever was noticed in the case of the excretion either of sulphuric acid or of indican by the kidneys. Incidentally, however, the author remarked the great effect which calomel had in checking the excretion in the urine, and therefore probably the formation of indican. Both from a clinically experimental and from a purely clinical point of view, Kuhn failed to find any good effect produced by benzo-naphthol; it would even appear that in more than one case the diarrhœa was aggravated. However, on the other hand, it must be recorded that no toxic effects were noticed consequent upon the administration of the drug, and its influence must, according to this series of researches, be written down as practically *nil.*

Incidentally Dr. Kuhn remarks that though we are now in possession of many compounds whose efficacy was at the time of their first introduction supposed to be due to a directly antiseptic action, yet a more thorough investigation has proved their success to be due rather to their purgative or astringent action than to a true antiseptic power. The author further draws attention to the great difficulty experienced in gaining a correct view of the effects of such a drug, difficulties however which apply with nearly equal force to the investigation of the properties of every therapeutic agent. The only true test of efficiency is extensive clinical observation, for the artificial conditions of experiments outside the body differ too widely from those met with in the organic being to allow of an inference derived from a purely chemical experiment being applied to practical medicine. An antiseptic action in the test tube by no means proves that the agent will be able to reach and destroy the putrefactive germs existing in the alimentary canal, and even such an apparently hopeless quality as insolubility does not prove that a drug will be without effect when it reaches the mucosa of the gastro-intestinal tract.

As an intestinal antiseptic, salol is strongly recommended in acute dysentery. (Rasch, *Deut. Med. Wochensch.*, 17, 1893). Dr. Rasch reports a case of undoubted acute dysentery in which he employed repeated doses of salol with the happiest results, viz., that the disease was cut short within about twenty-six hours from the onset. Several similar cases of illness have occurred to the author, and he records his experience that acute diarrhœas, whether they arise from dysentery poison, or from typhoid, or be of the nature of "cholera infantum," may be successfully treated by salol. The remedy may be given in emulsion or in olive oil with chloroform water, as recommended by Dr. Rasch.

A new theory on the pathology of non-obstructive or so-called hæmatogenic jaundice is furnished by Liebermeister (*Deut. Med. Woch.*, 16, 1893). After criticising the theory which assumes that the bile constituents exist pre-formed in the blood, the writer draws attention to the physiological fact that healthy liver-cells, analogously with other secreting cells, have the power of preventing any of the bile from entering the blood or lymph stream, or indeed of being discharged into any other channel than that of the bile-ducts. Should the integrity of the liver-cell be in any way interfered with, it is, according to Liebermeister, allowable to assume that this function of directing the secreted bile into its proper discharge channel would suffer with or without the other functions of the cell. The disturbance of this directing function may be compared to that morbid process by which in case of disease of the cells of the kidneys serum-albumen is allowed to make its way into the urine. There is evidence to shew that in the majority of cases of non-obstructive icterus the liver-cells undergo considerable degeneration, of varying degree, and Liebermeister believes that this may not unreasonably be accepted as a cause of the rediffusion of the bile into the blood lymph when the degeneration has not yet proceeded far enough to prevent all further manufacture of bile.

The author proposes to call such jaundice "acathectic," and insists that his explanation is more probable than the one which attributes non-obstructive jaundice to a non-excretion by the liver of the bile constituents already performed in the blood, though he is not disposed to deny entirely the possibility of the latter occurring in some cases.

Liebermeister includes in this category of "acathectic" icterus all cases in which jaundice results from poisoning by mineral or animal poisons; further, those in which there is a general infective disease, as in yellow fever and acute yellow atrophy. Many cases are, in the writer's opinion, to be classed as partly obstructive and partly acathectic, the degeneration which results in the liver-cells from obstructive retention of bile after a prolonged period being well known, and being not improbably followed by a loss of the directing functions which they possess.

[Professor Liebermeister does not in his paper take into account the theory of Murchison, which attributes hæmatogenic or non-obstructive jaundice to defective destruction of the bile pigment reabsorbed into the blood from the bile passages, gall-bladder, and intestines. This reabsorption there is every reason to think goes on in health to a great extent, for the amount of bile secreted is by no means accounted for by that excreted with the fæces, and analogous processes occur certainly in the case of the gastric juice and probably in that of the pancreatic and intestinal secretions.

Taking for granted the theory of Murchison, it is nevertheless possible that bile pigments may under certain circumstances not only be not destroyed in the blood, but that they may exist pre-formed in it in certain morbid conditions of that fluid.

As contrasted with Murchison's suggestion that of Liebermeister does not render clearer the pathology of non-obstructive icterus, and it is based upon less well-ascertained facts inasmuch as it is difficult to see how the direction of the flow of bile and the secretion of that fluid are to be severed from one another, seeing that the former is probably a result of the difference of the ratio of pressure between the secreting cell and the bile ducts on the one hand and the secreting cell and the blood vessels on the other; and considering that the secretion pressure of bile is usually distinctly less than the blood pressure, it is improbable that in cases of lower functional activity of the liver cell the bile should flow back into the blood vessels.]

An important paper on the subject of the means which we have for improving the state of general nutrition is furnished by Prof. Zuntz *(Deut. Med. Woch.*, No. 20, 1893). In the first part of his communication the writer points out the importance of not overworking the organs of digestion in tender years, and, on the other hand, of not underfeeding during the same time, as it is well known, from observations on men and animals, that the digestive organs, if insufficiently nourished in early life, are apt never to gain their proper powers. It has furthermore been proved, by experiments on animals and by statistics collected by Axel Key on the development of children, that the introduction into the organism of excessive quantities of nitrogenous food, of alcohol, and of certain spices tends to bring on a premature development of puberty and mental ripeness at the expense of the other organs According to Axel Key's statistics, which apply specially to America, it appears that the richer and more stimulating food given to the children of well-to-do people produces an increased weight and height, appearing generally about the fifteenth year in boys and about the thirteenth or fourteenth in girls. But this difference is equalised about the age of eighteen or nineteen, so that in spite of the nature and quantity of food not altering, the measures of weight and height became at that age practically the same in individuals belonging to the easy classes and in those who have to work for their daily bread.

In the second part of this paper Prof. Zuntz deals with the manner in which we may improve the general nutrition of the body. The fundamental question to be solved here is—"How is a sufficiency of food-stuff to be introduced into the body?" In the author's opinion it does not matter very much to what group of food-stuff the nutriment belongs. As for the common medicinal remedies which stimulate the appetite—bitters and acids—Zuntz thinks that they may, as a rule, be advantageously replaced by the administration of properly prepared foods.

Among the albumens the chief therapeutic remedy is peptone, but Zuntz has found that this is not much more useful than ordinary albuminous foods, since we are unable to make the peptone tasteful to the patient, and the latter soon tires of and refuses what is unpalatable. But in one group of cases the writer believes that peptones are of the greatest value, namely, in persons who have been reduced in strength and have lost their appetite through long-continued scantiness of proteid diet, induced either by disease of the digestive organs or starvation. This opinion is based on a series of experiments made by Munk and Rosenheim, which prove that proteids have a specific effect on digestion; for in animals, which were fed on the minimum of nitrogenous food necessary to keep up the nitrogen equilibrium, these observers noticed a gradual wasting ushered in by diminished secretion of the digestive juices, so that instead of 98 per cent. of fat being absorbed only 80 per cent. was used up, and similarly the proteid material absorbed was much diminished. Hence starvation and death of the animal which had flourished for a considerable time on the self-same diet. Now the possibility of giving large quantities of nitrogen in the shape of peptones is according to Zuntz an indication for their use for a few days at least in order that the secretion of the digestive juices may be restored to the normal amount.

Another conclusion, based chiefly on veterinary experience and experiments, is this: that the secretion of normal digestive juices may be stimulated to an enormous extent by the administration of large quantities of cane sugar.

As regards the third group of food stuffs, the fats, their administration is often feared for the sake of the digestive disturbances which may be induced by them; but apart from the fact that some fats, *e. g.*, cod-liver oil, are easily digested, Zuntz points out that fats rendered capable of being emulsified by the addition of oleic acid are much more easily absorbed than in the natural state, and are not so apt to produce digestive inconvenience. Such a remedial food is Mering's "Kraftchocolade."

In relation to fats, the writer points out that many fats and drugs which are commonly said to produce toxic symptoms or to be indigestible, produce these effects purely through their unpleasant influence on our organs of smell and taste. He instances the point that fusel oil, when given in capsules, never produces any inconvenience, and that though small quantities of fat given pure cause nausea in some subjects, large quantities well worked in with other foods are taken habitually by the same persons without trouble.

[Though Dr. Zuntz speaks mainly as a physiologist, his remarks are well worthy of the attention of the physician; nor has he entirely left out the clinical point of view, having, for instance, taken, on several days in succession, 400 grammes of emulsionised fat without suffering. His suggestions open a wide therapeutic field, and explain in simple physiological language the success which many complex-prepared food-stuffs have had. As regards the administration of sugar as a stimulant to the secretion of digestive juices, there must be considered, as a counter-indication, the great predisposition of sugar to ferment and produce dyspepsia.]

SURGERY.

BY WILLIAM F. HASLAM, F.R.C.S.

A new method of direct fixation of the fragments in Compound and Ununited Fracture. By Nicholas Senn, M.D., *Annals of Surgery*, August, 1893.—Dr. Senn first reviews the various methods that have been adopted for the direct fixation of the fragments, pointing out in what respect they are open to objection. He considers that "the most efficient way to prevent lateral and longitudinal displacement in oblique fractures of the shaft of the long bones is to bring the fractured surfaces in accurate contact, and hold them in this position by an efficient absorbable circular support. The use of silver wire and other unabsorbable suture material for this purpose is objectionable, because the linear pressure caused by the support must affect in a detrimental manner the fragments, and the circular splint, even if it becomes encysted, remains as a foreign substance liable at any time to become a source of disturbance." To secure this direct fixation he uses ferrules made of different sizes from fresh bone obtained from the slaughter house, perforated if longer than an inch, and the ring of bone not exceeding one-sixth of an inch in thickness. Sterilization is effected by boiling for an hour or more, after which the rings are kept immersed in sublimate alcohol, 1 in 1000 ready for use. Three cases are quoted where this method has been adopted with success, and the author offers the following conclusions for consideration :—

1. Direct fixation of the fragments is indicated in all compound fractures in which perfect retention cannot be secured by simpler measures, and in the treatment of ununited fracture requiring operative interference.

2. This method is also justifiable in the treatment of certain forms of subcutaneous fractures, in which reduction and retention cannot be accomplished without it.

3. Free exposure of the fragments in compound fractures secures the most favourable condition for thorough disinfection.

4. Perfect reduction and direct fixation of the fragments are the most reliable prophylactic measures against delayed non-union and deformity.

5. A compound fracture should be regarded in the same light as an injury of the soft tissues, and should be treated upon the same principles, viz, accurate coaptation of the different anatomical structures, and perfect retention by direct means of fixation, aided by an efficient external support.

6. Bone suture, metallic, bone and ivory nails do not furnish the necessary degree of support and immobilization in the direct treatment of fracture characterised by a strong tendency to displacement.

7. The solid intra-osseous splint of ivory or bone, as advised by Heine, Langenbeck, and Bircher, is objectionable, because it interferes with the ideal production of intermediate callus, and its spontaneous removal is beyond the absorptive capacity of the tissues.

8. The hollow, perforated ivory or bone cylinder, devised by the author, answers the same mechanical purpose without the objections which have been charged against the solid cylinder.

9. The safest and most efficient means of direct fixation of oblique fractures is by a bone ferrule, which must be applied in such a manner that it surrounds both fragments.

10. Such a circular absorbable direct splint prevents to perfection lateral and longitudinal displacement.

11 Rotation of the limb below, and angularity at the seat of fracture, must be prevented by a carefully applied circular plaster of Paris splint.

12. For fractures not requiring drainage, the entire wound should be closed by buried and superficial sutures, as the bone ferrule is removed by absorption.

13. In suppurating wounds the bone ferrule should not be removed until direct fixation has become superfluous by the formation of a sufficiently firm union between the fragments.

14. The external splint should be applied in such a manner that it does not require a change throughout the entire treatment, permitting at the same time access to the wound should this become necessary.

15. Direct fixation of a fracture, combined with perfect immobilisation, brings the different anatomical structures of the broken bone permanently into their normal relations, preparing the way for the early initiation and speedy consummation of an ideal process of repair, and the realisation of a perfect functional result.

16. Should future experience demonstrate that bone is not sufficiently absorbable, the same kind of ferrules can be made of partially decalcified bone or chromicised catgut.

Etiology of the various Deformities of Hip-joint Disease. By A. M. Phelps, M.D. *New York Medical Record*, July 15th, 1893.—Dr. Phelps' paper is based on a number of observations—clinical, pathological, and anatomical—that he has made with a view to ascertain the causes of the various positions the limb assumes in the different stages of hip disease. He finds—1. That abduction nearly always preceded flexion, or was attended by it, in the first stage. 2. Abduction and outward rotation were always present in the second stage. Flexion was nearly always present, but was absent in a few cases. 3. When the limb flexed beyond forty degrees, and frequently at a much less degree (twenty degrees), it quite rapidly passed to the deformity of adduction, inward rotation, and flexion, *whether the capsule contained fluid or not.* 4. A few cases exaggerated the deformity of the second stage for the third. In other cases there was outward rotation, abduction, shortening, with but slight flexion in the third stage. 5. That there was always spasm and contraction of muscles about the joint, and *in nearly every case all the various groups were in a state of spasmodic contraction.*

From clinical observations, the author concludes that the reason the limb assumed the position it does in the third stage of hip disease was "because the action of those muscles were all changed by the flexion of the limb, or from pathological destruction of the joint changing or annulling the action of muscles by destroying the leverage, or localised irritation of nerve-plates in the area of disease, producing spasm of groups of muscles receiving nerve-supply from the same common trunk The cause of the abduction, outward rotation, and flexion in the early stage of the disease is considered to be a voluntary effort on the part of the patient to relieve tension of the capsule and ligament, the increase of this deformity in the second stage being due to spasm of the muscles about the hip," the change of position seen in the third stage of the disease being explained as above.

Dr. Phelps draws the following conclusions. Normal or typical deformities are produced by change of leverage and actions of muscles due to—" 1. A voluntary effort. 2. Involuntary spasm or contraction of muscles. 3. Nervous irritation of groups of muscles, due to location of lesion in or about the joint. The erratic deformities are produced by change of leverage, due to pathological causes—*e.g*, destruction of bone, head, neck, or acetabulum ; nervous irritation of groups of muscles, due to location of lesion in and about the joint.

The pathological causes of erratic deformities are—1. Shortening of the head and neck of the femur. 2. Perforation of the acetabulum. 3. Shortening of the limb from either of the last-named causes. 4. Burrowing of pus through groups of muscles, either irritating them to contraction or destroying them. 5. Dislocation from destruction of bone. 6. Dislocation from large effusions. 7. Cicatricial contraction binding down and restricting the limit of motion of the femur."

REVIEWS.

A RECORD OF EXPERIMENTS ON THE SOLUTION OF GALL-STONES.*

THE solution of gall-stones is an old but very obscure problem, most modern authorities having come to the conclusion that no such result can be effected *in situ* by means of drugs administered by the mouth.

Dr. Brockbank, in the course of the enquiry which he has made the subject of his graduation in the Thesis, in the first place sought to determine how far the alleged solvents acted on gall-stones *in vitro*. For this purpose he experimented with a whole series of salts of the alkalies, none of which had any solvent action. He then tried chloroform water, 10 per cent. alcohol, 10 per cent. aldehyde, and aqueous solutions of ether and chloroform of undefined strength. In all these, similar negative results were obtained. On the other hand, a stone placed in olive oil lost 68 per cent. of its weight in ten days, and in pure oleic acid a small stone disappeared in 24 hours. Soap solution of the strength of 5 per cent produced a marked effect on a stone in a few hours, and in a week lost 34 per cent. of its weight. He goes on to say: "I think the most probable explanation of the reported disappearance of gall-stones after large doses of oil may be derived from the action of soap and fats on cholesterin. A digested fat passes into the circulation from the alimentary canal in three forms -as unchanged fat, as the corresponding fatty acid, and as soap. All occur normally in the bile, and the amount present in the bile increases with the amount of fat taken in the diet. Oil, fatty acids, and soaps all readily dissolve cholesterin and break up a gall-stone. The most powerful action is exhibited by a soda or potash soap If then the oil, fatty acid, and soap appear in the bile in increased amount after large doses of oil, it is very probable that the gall-stone is attacked by them, especially by the soap, and dissolved in time, or reduced in bulk enough to be enabled to pass out into the duodenum."

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* A Record of Experiments on the Solution of Gall-stones, with Observations on the Ætiology, Pathology, and Treatment of the Disease: being a Thesis written for the degree of Doctor of Medicine of the Victoria University. By Edward Mansfield Brockbank, M.B, Ch.B. Vict. Birmingham: Hall and English.

By an ingenious arrangement he was enabled to subject gall-stones to a continuous flow of bile over them, and found that it certainly had some solvent and decomposing action; but with 0 25 per cent. of sapo animalis added, this action was very greatly increased, while a very much slighter effect was produced by ordinary soda and potash soaps Sapo animalis is the soda-soap of animal fat, consisting chiefly of stearin.

Further observations shewed that bile salts in normal bile tend to keep cholesterin in solution, the glycocholate being as good a solvent as the taurocholate. Oleic acid is a more rapid solvent of gall-stones than oil.

In the second part of this essay the author concludes that cholesterin, of which gall-stones are chiefly composed, is a product not of the liver cells, but of the mucous membrane lining the biliary passages, and that normally it is kept in solution by the salts of the bile acids. He thinks cholesterin is produced in excess in heart disease or other conditions favouring the stagnation of the bile, while bile salts may be diminished by various functional and anatomical changes in the liver. The *post mortem* examination of bile shews that, after standing, cholesterin crystals form in it, apparently from the decomposition of epithelial cells. He thinks that "the cholesterin is derived from the mucous membrane either as an excretion or a secretion, or from the surface cells which are shed in the normal sequence of events. The shed epithelium falls into bile which remains an abnormally long time in the gall bladder. The longer bile remains in the gall bladder, the more cholesterin does it contain. This stagnation may be induced by a variety of causes—by want of exercise, by a collection of fæces in the hepatic flexure of the colon pressing on the cystic duct, by a fundus depressed from distension or from corset wearing, until it is nearly vertically beneath the outlet of the bladder, etc. When the cell has remained some time in the bile, it either breaks up into a granular detritus—from which cholesterin crystals subsequently form—or else it is transformed in part into the myelin bodies, which, in their turn, change into a crystal. Were there sufficient bile salts to dissolve the cholesterin when formed, no crystals would appear. . . . Over the clusters of crystals a deposit forms of cell detritus and bile pigment made sticky by mucus, which binds the clusters together." These small masses sink in the gall bladder and become the nuclei around which further concretion takes place

With reference to the influence of food in the production of gallstones, he draws attention to their absence in wild carnivora, while they are occasionally present in some domesticated specimens. They occur not unfrequently in oxen and sheep. They are also more common among the ill-fed German hospital patients than among the better-fed English of the same class. On the other hand, they are said to be very rare in India.

For treatment he recommends phosphate or sulphate of soda every morning in a tumblerful of hot water, the dose of the salt being sufficient to keep the bowels open. Large doses of olive oil may be given by the mouth or rectum, or the consumption of fatty food encouraged. The diet should contain very little saccharine or starchy matter, and alcohol should be allowed only in the form of light wine Exercise, especially horse-exercise or rowing, should be encouraged; and for those who, from age or obesity, cannot undertake this, some form of home gymnastics may be employed. He also suggests that an impacted stone, which cannot be felt or removed by surgical means, may be dissolved away by injecting olive oil or a watery solution of animal soap into the gall bladder.

We have given the above details, as far as possible, in the author's own words, and believe they will be found of sufficient interest to deserve the space devoted to them But it has always appeared to us that gall-stones are so common that they do not constitute a disease; the trouble begins only when these stones, under some unknown influence, leave the gall-bladder and pass along the cystic duct. While all attempts to dissolve the stones in the gall bladder seem very hopeless, it should not be impossible to so act upon the biliary apparatus as to repress these periodical outbursts of peristaltic activity in which a stone is forced out of the gall bladder. We believe that these attacks are brought on by the use of purgative medicines, also by any gastric or duodenal irritation; hence they are favoured by gastro-duodenal irritability—in other words, by catarrh. The prophylactic treatment of this condition should therefore be the treatment of gastro-duodenal catarrh. Unfortunately, it is not always successful; the attacks may recur in spite of all our care; and, in a certain proportion of cases, cholecystotomy is the unavoidable and only sure means of relief. We say relief, and not cure; for, unfortunately, we know of three cases in which this operation has been performed twice in the same individual.

SELECTED MONOGRAPHS ON DERMATOLOGY.*

THE contents of this volume are of great interest and importance, and the translation and editorial work in connection therewith have been done in a way worthy of the traditional excellence of the society's publications.

The first place is given to a selection of papers by Unna, edited by Dr. Phineas Abraham, who, in aiming at condensation, has used his pruning-knife with a wise discretion. In some of the papers the condensation is considerable, so that the general conclusions only of the author are given—*e.g.*, in the article on Lichen Ruber. It is an advantage to have access to these papers in English; and they certainly sustain the author's reputation as a clinician and pathologist. The papers before us shew the marked characteristics of Unna's method—viz., the very accurate observation of phenomena, and the interpretation and elucidation of their significance by a thoughtful mind possessing peculiar inductive capacity leading to generally speaking sound generalisation.

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* Selected Monographs on Dermatology. By Unna, Nielsen, Duhring, Bronson, Blanc, Berger, and Morrow. New Sydenham Society. 1893.

From this it arises that we find Unna's writings, while always lucid and instructive, are, more often than not, convincing in their argument. Moreover, not the least valuable factor in his writings is their suggestiveness. There is a refreshing way which he has of demonstrating the validity of his concepts by practical illustration and use. The step, for example, from the consideration of the idiospasm of Raynaud's Disease to the therapeutics of reduction of redness of the skin seems a natural one to the habitual reader of Unna's papers. The 151 pages occupied by translations of 23 articles by this author give a fair idea of the wealth of exactly observed and carefully collected facts to be found in his writings, of which a bibliographical list of no less than 160 is given. An acquaintance with Unna's work is indispensable for those who are called upon to deal with skin diseases, while the suggestive lectures on the general pathology of the skin may be read with advantage by the general physician.

The following errors in the text were noted. Page 32, "asthenatic" for (?) "asthmatic;" page 40, "eases" for "cases;" page 48, "Schimmer;" page 34, "*a* acute;" page 55, "hyperhydrosis;" page 84, "bring" for "being;" page 102, "Dpsomaniacs;" page 120, line 22, "as" is omitted.

The volume contains a complete collection of the writings of Duhring on Dermatitis Herpetiformis, reprinted chiefly from American journals. To those who have followed this author's steadfast labours to reduce to order the chaos of obscure bulbous diseases of the type hydroa it will be a distinct convenience to have collected under one cover his writings upon this important subject.

A considerable section of the book is a systematic treatise on drug eruptions, by Morrow, with able editorial notes by Colcott

Fox. This section alone constitutes a book of over 200 pages, to which is added an ample bibliography. Such a work forms an almost indispensable book of reference, while the evidences of laborious and careful reading and investigation stamp the author as a most painstaking collator. The editorial work generally evinces the characteristic care of Fox. A useful feature is that, under the headings of many of the more important exanthem-producing drugs, there are given chemical tests for the ready detection in the urine of the particular drug—*e.g.*, chloral, chrysarobin, pyrogallic acid, potassium bichromate, iodoform, quinine, antipyrin, etc. The author's strictures on Behrend's views seem unworthily sarcastic (p. 383), for the potency of toxines can hardly be called into question at this time of day. The statement that the eruptions which follow the external and internal use of arsenic are similar in character meets with a protest from the editor which will be generally endorsed. Curiously, the mustard-produced chloasma is unnoticed. The proofs of the foot-notes seem to have been less carefully read than the rest of the text. On page 433 it is stated that Neilsen *(sic)* found that zoster occurred in 7·8 per cent. of those psoriasis patients to whom arsenic was given The truth would appear to be that Nielsen found that 2·6 per cent were thus affected (page 171 of same volume). The phrase "neuropathic origin of leprosy" (p. 393) apparently calls for amplification. The numbering of the foot-note on page 414 needs rectifying. "Stimulate" (p. 483) should read "simulate." Typographical errors were also noted on page 481, "mecurial;" page 404, "wonnds;" page 511, "characteristally;" page 381, "sebaceons."

Eighteen pages are devoted to an interesting and suggestive note by Bronson on "The Sensation of Itching." One cannot help fearing, however, that American authors are developing an undesirable prolixity of style. The general reader, too, may find some little difficulty in at once grasping the intention of such words as "ontogenetically," "phylogenetically," "pselaphesia," the use of which, as well as of many other long words, does not make for lucidity.

Dr. William Blanc, of New Orleans, contributes notes of a case of Alibert's Mycosis Fongoïde, in which, again, little effort is made towards condensation. The effect of the administration of arsenic strikingly recalls the beneficial effect of this drug in some recorded cases of multiple skin sarcomata. Two well-drawn plates illustrate the histology of the tumours. We note that the page heading of page 320 needs emendation.

An admirably concise account of Pellagra follows, by Berger, epitomised and translated by Barendt. The importance of this disease from the point of view of public health, in countries lying between 42 and 47 degrees of latitude, is indicated by the fact that in the author's district 1·2 per cent. of the population are pellagrous. On page 352, "difficult" should read "different."

There are two articles by Ludwig Nielsen, of Copenhagen, both of great value. In one is given carefully-compiled statistical information on the subject of the appearance of zoster during the administration of arsenic. The other deals in what can only be described as the most charming and complete way with the etiology of psoriasis.

A CONTRIBUTION TO THE PATHOLOGY OF THE VERMIFORM APPENDIX.*

THE Vermiform Appendix, whose troubles were so long ignored, can no longer complain of neglect either on the part of Clinician or Pathologist. It is now no longer simply an interesting embryonic remnant marking a step in the process of evolution, but is rightly regarded as a structure which is with some frequency the starting point of disease and death. This then is ample justification, if it were needed, for the interesting and exhaustive monograph of 160 pages which Dr. Kelynack has published.

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* A Contribution to the Pathology of the Vermiform Appendix. By T. N. Kelynack, M.D., Pathologist to the Manchester Royal Infirmary, etc. With Illustrations and Bibliography. London: H. K. Lewis.

The earlier pages are devoted to the comparative anatomy, development and anatomy of the Appendix. The part of greatest interest here is that which describes the "peri-cæcal peritoneal fossæ" which have such an important bearing upon the position of the appendix and therefore upon the localization of the inflammatory collections which arise around and in connection with it. Although these are variable and agreement has not been arrived at about them, yet they may be regarded as sufficiently well defined to justify their being described as the Ileo-colic, the Ileo-cæcal, and the Sub-cæcal fossæ. The first is small and is situated at the angle formed by the junction of the ileum and colon, the floor being formed by the mesentery. The second is the most important; it lies behind the angle of junction of the ileum and cæcum and extends for a varying distance upwards behind the ileo-colic junction and parallel to the ascending colon. "The sub-cæcal fossa is situated immediately beneath the cæcum which has usually to be raised to bring it into view."

Discussing the variations in the position of the appendix several positions are described as normal, others as abnormal. Amongst the former may be mentioned the retro-cæcal as fairly frequent and interesting from a clinical point of view. The appendix may also be found to the outer side of the cæcum, just below and underneath the cæcum, or tucked upwards behind the ileum and its mesentery, or hanging down free in the pelvis. We are glad to notice that Dr. Kelynack regards the appendix as always an intra-peritoneal organ though it is often shut off from the general cavity by adhesion.

Amongst the malpositions of the appendix perhaps the most interesting are the herniæ, especially the internal, in which the appendix is herniated into one of the cæcal fossæ already mentioned.

The condition described as "cystic dilatation of the appendix" would be better called by some other name which would imply that we have simply a stenosis of the orifice with retention of secretion which becomes somewhat altered, as in the gall-bladder.

We have met with one specimen of this kind which produced fatal peritonitis from perforation and leakage.

The author, whilst acknowledging that the term "appendicitis" is objectionable, is strongly of opinion that the appendix is usually the seat of the primary trouble. He therefore retains the term and makes his classification as follows:—(1) Simple Appendicitis, (2) Perforative Appendicitis, (3) Recurrent Appendicitis. Group 2 he further sub-divides into (*a*) Perf. Appendicitis with *diffuse* peritonitis, (*b*) Perf. Appendicitis with *localised* peritonitis, and (*c*) Perforative Appendicitis with extra-peritoneal suppuration. In addition he mentions three specific forms of appendicitis—Tubercular, Typhoid, and Actinomycotic. This is a purely pathological classification, and as such we do not feel inclined to quarrel with it. Clinically, however, we do not think it possible to differentiate between perforative appendicitis with localised peritonitis and that with extra-peritoneal suppuration; and further, we are not at all satisfied that *perforation* of the appendix always occurs in these two groups.

We note with some surprise that digestive disturbances are made light of amongst the ætiological factors in appendicitis. This is contrary to our experience, in which with some frequency an indigestible meal, probably setting up a colitis, has often appeared to be the starting point of the more serious trouble.

In describing his various groups the author has given numerous notes, clinical as well as pathological, which add considerably to the value of his book.

In a brief *résumé* of the signs and symptoms of appendicular disease we are glad to see it pointed out that the pain is not necessarily felt at first, or even at all, in the right iliac region, although perhaps this is the rule. The intensity of the pain is regarded as a guide to the recognition of perforation, becoming perhaps an agony at the moment it occurs. McBurney's tender point is discussed at some length, and without its being accepted or rejected it appears to be regarded with doubt, and it is definitely stated that McBurney is in error when he regards this tender point as indicating the base of the appendix. Exploratory puncture to assist in diagnosis is only mentioned to be condemned.

The last chapter is a brief review of the treatment of Inflammations of the Appendix. There is not much in it calling for comment, but we are glad to notice the remark—"there should be free and early co-operation of physician and surgeon;" in our opinion this co-operation is of the greatest advantage to the patient.

The illustrations are numerous and good, and the Bibliography appears to be a very complete one.

We congratulate Dr. Kelynack on his excellent monograph.

SCIATICA.*

This little book is of greater genuine merit than many more pretentious works. It only deals with a small subject; but it is by such careful study of special departments that the art of medicine is advanced. The author has paid special attention to the subject of sciatica, and has treated 68 cases, so that he has a solid basis of personal observation from which to draw his conclusions. He believes that the chief cause of true sciatica—excluding the pressure of tumours, fæcal or other, on the trunk of the nerve—is exposure to cold and damp, especially when this occurs in a person predisposed to rheumatism or gout. It occurred in his series of cases more frequently among females, and may be due to neuralgia, to neuritis, or to perineuritis. He distinguishes neuralgia from the inflammatory affections of the nerves by its intermittence, and the absence of tenderness or increased pain on movement or extension; while in perineuritis there is greater tenderness, and thickening of the nerve trunk. This differentiation seems to us somewhat futile, and that it is enough to recognise neuritis when it reveals itself by anæsthesia, loss of electrical reactions, wasted muscles, etc. He thinks exposure to chills on the cold seats of water closets, etc., is a very common means of acquiring or aggravating sciatica.

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* Sciatica: a Record of Clinical Observations on the Causes, Nature, and Treatment of Sixty-eight Cases. By A. Symons Eccles, M.B. Aberd. London: Macmillan and Co. 1893.

The treatment he recommends is, in the first place, ***rest in bed***, and, in severe cases, absolute rest. The patient should be clothed in flannel, and the shirts should be woollen or cotton, never linen, which last material is, in his opinion, often responsible for nocturnal exacerbation of pain. The feet should be protected by socks. In persons able to go about, the affected limb should be protected by extra clothing. "In the case of male patients, the writer has found it a good plan to insist on the adoption of an extra garment, which may be easily devised by cutting off from a pair of merino pants the leg corresponding to the sound and unaffected limb, leaving the waistband attached to the leg which is to serve as an extra covering to the painful limb." For female patients he recommends woollen combinations, with a one-legged knickerbocker and warm stockings. He recommends that the seats of water closets should be covered with a piece of felt, and that patients should use a blanket with a hole cut in it corresponding to the pan, the rest of the blanket being used to wrap round their loose limbs. He advocates a generous diet, a moderate amount of alcohol, with plenty of hot water or mineral table-water. For the relief of pain he uses large doses of iodide of potassium, a combination of salicylate of sodium and bromide of potassium, but curiously omits to mention antipyrin and its allies. During the period of rest in bed, massage is of great value; and under this head he gives precise details of the manipulation to be followed, for which we must refer our readers to the book itself. He speaks highly of the use of Schreiber's blocks, not only as an exercise, but as a test of progress; and these are the only mechanical appliance he employs. Galvanism is regarded as an effective means of giving relief to pain, and when it has failed to produce the usual anodyne effect, the writer has passed into the previously emptied rectum a small washleather-covered anode, the end of which is pressed against the side of the rectum nearest to the affected nerve. The cathode is then placed over the sacro-sciatic notch, and a current of five to eight milliamperes is passed for five to ten minutes. Faradisation he appears to have found less useful, except as a stimulant to the muscles. Where absolute rest is needed, he lays stress on his plan of swinging the limb in a Salter's swing. Another suggestion is to iron the limb with a heat-iron anode made in the shape of a laundress's iron.

The final chapter gives minute directions for the various passive movements and active exercises by which the limb is restored to its normal strength after the pain has been got rid of.

MOVABLE KIDNEY AND INTERMITTING HYDRONEPHROSIS.*

THIS brochure deals with a subject of special interest, of by no means uncommon occurrence, and which is still constantly overlooked, not on account of any great difficulty in its diagnosis, but because the attention of practitioners has not been sufficiently awakened to its existence and its symptoms.

The author relates the case of a lady aged 37, unmarried, who came under observation on account of hæmorrhage from the bowel. At fifteen years of age she had been laid up with a swelling in the left side, attributed at the time to delayed menstruation. After this she enjoyed good health, with the exception of a slight attack of scarlatina and a mild acute rheumatism, until two years previous to the present illness, when she was seized with severe pain in the lower part of the abdomen, which came on while lifting a sick relation whom she was nursing. She was menstruating at the time, and her periods, which had been hitherto painless, henceforth were accompanied by pain and sickness. She also commenced to suffer from hæmorrhage from the bowel, increasing in frequency and amount, with pain, tenesmus, and diarrhœa. After a few weeks her stomach became very irritable, and vomiting frequently occurred. With an interval of temporary improvement these troubles continued, and, two months after first coming under observation, a small tumour was for a time palpable to the left of and above the umbilicus A month later a tumour, the size of a fœtal head, was felt in the left hypochondriac and lumbar region, but subsided in three or four days. The urine was always normal. Three or four months later, after this cycle of events had recurred several times, hydronephrosis was diagnosed. Counter irritation was tried at first, and relieved the pain. Later on, the tumour was aspirated, and its contents identified as urine. The kidney was extirpated by Mr. Henry Morris, and the patient made a good recovery. Unfortunately, the right kidney became the seat of similar disease, and this was treated by incision and drainage, the kidney being firmly stitched to the muscles and fascia behind it. This had the happy effect of relieving her symptoms, though at the end of the history she was left with a urinary fistula.

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* Movable Kidney and Intermitting Hydronephrosis. A thesis for the degree of M.D. Aberdeen. By G. D. Knight. London : Baillière, Tindall, and Cox.

This case is made the text upon which to hang a systematic description of the affection in question, which begins in classical fashion with a description of the anatomy of the kidneys and ureters. The next chapter relates the history of movable kidney and discusses its pathogenesis and symptoms somewhat briefly. The etiology of hydronephrosis forms the subject matter of an entire chapter, in which fair justice is done to the literature of the subject, and the subsequent portions of the book are taken up with a similar detailed description of the disease and its treatment. The author believes the conclusion to be warranted that twisting or kinking the ureter is the primary cause of a number of cases of hydronephrosis, and is much more common than is generally accepted. The usual age at which they are detected is from 20 to 30, but they take ten or fifteen years to develope fully. Finally, if rest and mechanical means prove ineffective, nephrorraphy alone, or combined with incision of the kidney (nephrotomy), affords the best means of relief, and affords the greatest possibility of a cure.

We fully accept the author's view of the frequency of mobile kidney, of its relation to hydronephrosis, and of the consequent treatment he advocates. We therefore commend the book to our readers as containing a very full, sound, and trustworthy statement of facts and doctrines which deserve to be better known and more frequently acted upon.

ADVICE TO INTENDING VISITORS TO CANNES.*

This elegant little volume is worthy of the millionaires who are popularly supposed to constitute the visiting population of Cannes. Everyone knows the story of the selection of this beautiful spot by the late Lord Brougham, who was so struck by its delightful aspect that he purchased land here, built himself a villa, and became the founder of modern Cannes, which is situated to the east of the old fishing village. It occupies a vast amphitheatre, being enclosed by protecting hills, amid which are dotted the collection of hotels and villas, all standing apart, and surrounded by parks or gardens, which constitute the modern town. Its average winter temperature is eight to ten degrees above that of London; but the air is very dry, and during the day the temperature very seldom falls below freezing point. The average number of rainy days from November to May is forty, but the showers, though heavy, are of short duration. Like all places on the Riviera, there is a marked fall of temperature at sunset, of which the invalid must beware. The water supply apparently leaves something to be desired, but the draining and cleansing of the town are good, and the health of the native population is very good.

Dr. Blanc recommends a winter residence at Cannes for the following cases:—1, Those who wish to avoid the cold damp

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* Advice to Intending Visitors to Cannes. By H. Blanc, M.D. London: J. and A. Churchill. 1893.

English winter; 2, convalescents from acute diseases; 3, those in need of mental rest; 4, elderly people; 5, sufferers from catarrhal affections, scrofula, and tubercular diseases of bones; 6, phthisis in the early stage, in the catarrhal form, in scrofulous persons without pyrexia or hæmoptysis; 7, chronic gout and rheumatism; 8, Bright's disease, and some others.

He considers a residence here is contra-indicated for epilepsy, hysteria, hæmorrhagic diseases, febrile diseases, acute phthisis, acute gout, and skin diseases. He warns visitors against the digestive derangements which often attack new comers, and which he attributes to over-indulgence in the many savoury dishes which follow one another in rapid succession at a first-class *table d'hôte*, or to too free indulgence in the red wines of the country, which should be always taken well diluted. He advises invalids to protect themselves against the heat of the sun by day and the chills of evening, and he insists upon the importance of wearing flannel next the skin, being indoors by sunset, wrapping up in cold winds, avoiding damp feet, and other elementary matters which the millionaires of Cannes, like simpler people, require to be told over and over again.

In conclusion, Dr. Blanc writes: "Cannes in climate, in society, in comforts, is certainly a most delightful winter resort. Many indeed are its advantages, few its drawbacks. If visitors would only listen to the advice and follow the directions herein given, and which are but the echo of the oft-expressed opinion of the English physicians practising in the Riviera, they would carry away with them nought but a pleasing and grateful remembrance of a winter spent '*au pays du soleil.*'"

FORENSIC MEDICINE AND TOXICOLOGY.*

In his preface, Professor Mann says that this book has been written chiefly as a text-book for students of Medicine. It may at once be acknowledged that it is likely to take an important place among existing works. It is probably too much to expect any work of the kind to differ materially in style from other well-known text-books, but Prof. Mann has divided his subject into three parts—Part I., Forensic Medicine; Part II., Insanity; and Part III., Toxicology. And here, it will be observed, he has taken a somewhat original course in dealing with insanity much more fully than other authors have done in similar text-books. The result is highly satisfactory, and the pages devoted to "Criminal Responsibility" and "Drunkenness in Relation to Criminal Responsibility" are well worthy of perusal, illustrated as they are by numerous recent decisions of the judges of the High Court.

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* Forensic Medicine and Toxicology. By J. Dixon Mann, M.D., F.R.C.P., Professor of Medical Jurisprudence and Toxicology in Owen's College, Manchester, etc. London: Charles Griffin and Co. Limited.

Part III, devoted to Toxicology, though following well-known lines, is quite up to date, many recent improvements in methods being noted and cases being referred to which have been recorded as late as last year. There can be no doubt that Dr. Mann has produced a work of great scientific value, and one on which he can be honestly congratulated.

THE QUEEN'S FACULTY OF MEDICINE AT MASON COLLEGE.

THE prolonged strike in the building trade of the spring and early summer of 1892 caused such delay in the erection of the new medical school at Mason College as to oblige the carrying on of the school during the past twelve months in a small portion only of its permanent home. Those who were present at the opening conversazione a year ago were consequently able to see only a small part of the school, and that in a partially completed condition. The school is now quite complete, and work will be resumed in October in buildings which, whether for size or equipment, will compare favourably with any others of the kind in the kingdom. In the first place, the two new theatres—one seating over 300, the other over 200 students—are complete. Both are well lit, and are provided with arrangements of the newest kind for the use of the lantern and for other means of demonstration. Under the main theatre is a large common room for the students, which will have a special attendant, whose duty it will be to look after the comfort of those using the room, and provide light refreshment, such as tea, coffee, etc., for those desiring to purchase them. A cycle shed is also being provided for the convenience of students who may ride in to the College from a distance. The Public Health Museum, which is also completed, contains a collection illustrative of sanitary science. Near this is the Bacteriological Laboratory, which is fitted with the necessary apparatus for cultivating, isolating, and otherwise studying the minute forms of life at present attracting so much attention as causes of disease. The provision of these departments enables the College to give a full course of instruction to those desiring to present themselves as candidates for the diplomas in Public Health of the various Examining Boards. The other laboratory which has been completed is that of Practical Pharmacy, in which a number of students will be able to learn practically the methods of preparing drugs and compounding them into appropriate mixtures. This important branch of knowledge has not been taught practically in the past within the College, and its addition to the curriculum renders it now possible to say that there is no subject of medical education which can be practically taught—taught, that is, by direct work on the students' part—which is not so taught in Mason College.

The tendency of modern education in general, and of medical education in particular, is to replace, at least in large part, verbal instruction by demonstration and practical work carried on by the student. The Mason College has moved, from its foundation, in this direction, and has now, on the medical side, come to a point where progress is no longer possible, save in the direction of further perfecting the arrangements which now exist.

PRIZE LIST, 1892-3.

Subject.	*Medals.*	*1st Certificates.*	*2nd Certificates.*
MEDICINE.—	...	F. G. Messiter	
SURGERY.—	W. M. Clendinnen	W. M. Clendinnen	F. G. Messiter
ANATOMY.—			
(Junior)	L. Whitfield	L. Whitfield H. E. White E. C. T. Smith C. H. Clarke	E. H. Collens F. R. Greenwood
(Senior)	J. G. Emanuel, B.Sc.	J. G. Emanuel, B.Sc.	J. C. Kneale
PRACTICAL ANATOMY.—			
(Junior)	E. H. Collens	E. H. Collens E. C. T. Smith	L. Whitfield A. W. Shedden H. E. White
(Senior)	J. G. Emanuel, B.Sc.	J. G. Emanuel, B.Sc. M. H. Whitehouse	F. R. M. Heggs
PHYSIOLOGY.—			
(Junior)	F. S. Hunter	F. S. Hunter L. Whitfield W. B. H. Wood	F. R. Greenwood C. H. Clarke
(Senior)	J. G. Emanuel, B.Sc.	J. G. Emanuel, B.Sc.	N. W. Eley
CHEMISTRY.—	A. W. Shedden	A. W. Shedden	A. W. Aldridge C. H. Clarke E. P. Burns
PRACTICAL CHEMISTRY.—	W. E. B. Roberts A. W. Shedden	W. E. B. Roberts A. W. Shedden P. Southan E. T. Burton E. P. Burns	F. N. Deakin J. O. Harvey
CHEMICAL PHYSICS.—	W. E. B. Roberts	W. E. B. Roberts A. W. Shedden A. W. Aldridge	C. H. Clarke
ELEMENTARY BIOLOGY.—	A. W. Shedden	A. W. Shedden	E. C. T. Smith H. H. C. Dent S. P. Johnson
MATERIA MEDICA.—	J. G. Emanuel, B.Sc.	J. G. Emanuel, B.Sc. W. B. H. Wood F. R. Greenwood	W. E. B. Roberts
MEDICAL JURISPRUDENCE.—	W. S. Robinson	W. S. Robinson G. J. Branson, B.A.	W. E. Bracey
MIDWIFERY AND GYNÆCOLOGY.—		...	E. Wright
PATHOLOGY.—	F. G. Messiter	F. G. Messiter	W. M. Clendinnen
DENTAL ANATOMY AND SURGERY.—		...	C. F. Haines
DENTAL MECHANICS.—		...	S. Carter
DENTAL METALLURGY.—		...	T. St. Johnston

INGLEBY SCHOLARSHIP.

E. G. Walls.

RUSSELL MEMORIAL PRIZE.

H. Sinigar.

PROSECTORS OF ANATOMY.

(Senior)	R. A. Bennett J. Ganner	(Junior)	W. P. Nicol A. W. Nuthall F. G. Messiter.

CLINICAL PRIZES.

MEDICINE.—		H. Sinigar.
SURGERY.—	(Senior)	W. M. Clendinnen
	(Junior)	W. S. Robinson.

DENTAL HOSPITAL CERTIFICATES.

DENTAL SURGERY. —	(Senior)	C. F. Haines
	(Junior)	F. S. Jenks.
ASH'S PRIZE.—	.. ...	A. W. Jenkins.

EXORCISM IN THE NINETEENTH CENTURY.

THE French medical press has been relating with some surprise and not unnatural disgust a case of exorcism practised by respectable priests with the sanction of the Bishop of the Diocese.

The facts as related are as follow :—A young woman of 19, employed in a trimming factory at Gif, after experiencing a serious disappointment was seized with "nervous crises followed by catalepsy, which soon degenerated into hysteria complicated by somnambulism and hypnotism," whatever that may mean! The doctors first appealed to were at a loss to explain the symptoms, and the crises followed each other with increasing frequency and severity, while the neighbours complained of her shrieks and groans. The rumour spread that she had the gift of divination, and the most extraordinary and supernatural facts were related of her, so that superstitious people began to say she was possessed by the devil. The strongest partisan of this latter view was the curé of Gif, who at last called on the bishop at Versailles to ask his permission to exorcise her. The good bishop seems to have been moved by this touching instance of *fin de siècle* faith, and having by prudence added to the commission the Superior of the great Seminary of Versailles, gave the required sanction. Then commenced a series of almost incredible scenes which extended over several months. In the presence of a large crowd the two priests recited the ancient prayers of the church for the exorcism of those possessed by evil spirits, to which the sufferer responded by varied abuse.

At length the scandal became so great that the municipal authorities interfered and requested M. Dumontpallier to see the girl. He at once recognised that it was a case of hysteria major, and offered to cure her if the family would entrust her to his care. But this offer was refused, and M. Dumontpallier had the opportunity of being present at a ceremony which he has described in the following terms:—"In a street of the village I met three persons, amongst whom were the *curé* and the director of the Versailles Seminary. I was introduced to them, and asked permission to accompany them. This permission was granted. On arriving in the presence of the sufferer, they arrayed themselves in their sacerdotal vestments, took a crucifix, and recited their formulæ of exorcism. When she saw what they were doing, the patient abused them with the utmost violence. I cannot repeat all the Latin phrases used by the operators, but the words '*vade retro Satanas*' recurred frequently. As they proceeded, the poor girl's rage increased, and whilst they repeated their litanies, her invariable response was '*m*——, *m*——.' (This stands for an obscene word too frequently used by the lower classes in France—*merd* = *merda*, excrement.) At the same time she laughed in their faces, saying such things as—'They are mad!' 'What do they want with their good God?' 'Are not they stupid?' 'Will you let me alone?' etc. I spare you her coarser language. The priest held his ground under this avalanche of abuse. After a time, as the patient seemed more calm, he declared that God seconded his efforts, and that the biggest and most dangerous of the devils (I forget the name he gave it) had departed, and that there only remained some little devils of no importance, who made energetic efforts not to be dislodged, but who were undoubtedly near the end of their resistance. Finally, the priests decided to take their leave."

Such are the facts, we read, that take place at the end of the nineteenth century, not a dozen miles from Paris, under the auspices of that Church which millions still regard as the depository of Divine wisdom.

PUBLISHERS' DEPARTMENT.

New Books, etc., Received.

The Mineral Waters of Harrogate. By JOHN LIDDELL, M.D., Physician to the Harrogate Royal Bath Hospital. Edinburgh: Young J. Pentland. 1893.

On the Nature and Treatment of Talipes Equino-Varus, or Club Foot. By BERNARD E. BRODHURST, F.R.C.S., Surgeon to the Royal Orthopædic Hospital. London: J. and A. Churchill. 1893.

Sanitary Work in the Smaller Towns and in Villages. By CHARLES SLAGG, Ass. M.I.C.E. Third edition, enlarged London: Crosby, Lockwood, and Son 1893.

A Manual of Medical Treatment: or, Clinical Therapeutics. By J. BURNEY YEO, M.D., F.R.C.P. With illustrations. Two vols. London: Cassell and Co. 1893.

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NOVEMBER, 1893.

ORIGINAL COMMUNICATIONS.

ON PELVIC ABSCESS.*

BY CHARLES J. CULLINGWORTH, M.D., D.C.L., F.R.C.P.
OBSTETRIC PHYSICIAN TO ST. THOMAS'S HOSPITAL, LONDON.

I CONSIDER it a great distinction to have been invited to deliver this inaugural address. When I looked down the list of those who have had a similar honour paid to them in previous years, and remembered how almost every one of them had made it an occasion for adding something of sterling and permanent value to the literature of our profession, I realised, with much misgiving as to my competence for the task, how serious a duty I had undertaken.

In the address on obstetrics and gynæcology which I had the honour of delivering at the recent meeting of the British Medical Association at Newcastle, I spoke of the debt that gynæcology owed to the enterprise of the modern abdominal surgeon, in regard more particularly to the light that had thereby been thrown on the pathology, diagnosis, and treatment of inflammation of the Fallopian tubes. Remembering that my address this evening would be delivered in Birmingham, the city where, for many years, abdominal surgery received its chief impetus, it seemed to me natural and fitting that I should utilise the occasion for calling attention to some of the many *other* directions in which our knowledge of pelvic disease has recently been much advanced, and in which the advance has been due, if not entirely, certainly very largely, to the teachings of abdominal surgery. The subject I have chosen is pelvic abscess, or, to speak more correctly, pelvic suppuration, in the female.

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* An Address delivered at Birmingham at the opening meeting of the Midland Medical Society, November 2nd, 1893.

Until quite recently, all forms of pelvic suppuration were styled indiscriminately pelvic abscess, and our ideas as to their etiology and pathology were exceedingly vague. It was generally believed that there were two forms of pelvic abscess, the one and more common form having its seat in the pelvic connective tissue, the other and rarer form being intraperitoneal, and being located for the most part in Douglas' pouch, where the pus, having in the first instance accumulated in that pouch by the law of gravitation, eventually became encysted by adhesions. The one was held to be the result of cellulitis, the other of peritonitis, both of which were regarded as idiopathic affections capable of being induced either by exposure to cold (especially during menstruation and after parturition and abortion), or by direct injury received either during labour or in the course of surgical manipulations conducted through the vagina. The changes that have been brought about in our views respecting suppuration in general, and pelvic inflammations in particular, have of necessity affected our notions as to pelvic abscess. We now know that suppuration in the pelvis, as in other parts of the body, is always an infective process, and can never have either a purely catarrhal or a purely traumatic origin. Neither cellulitis nor peritonitis can any longer be regarded as an idiopathic affection. Catarrh and injury may be, and often are, factors in their production, but they are not the essential factors. There must always be an infection of some kind. Our knowledge, too, of the *morbid anatomy* of pelvic abscess has received important additions. We now know that the immediate sources of pelvic suppuration are much more numerous than they were supposed to be, and that—although it may be convenient to retain the term pelvic abscess as a specific name for cases of suppuration in the connective tissue of the pelvis and as a provisional diagnosis in other cases of pelvic suppuration, where the precise locality of the lesion has not yet been discovered—the time has come to discard it as a general term, and to aim, in every case of pelvic suppuration, at a more exact diagnosis than the use of such a term would imply. I am no advocate for pretending to a refinement of diagnosis that is unattainable; but when I see a hospital physician never venturing further in the diagnosis of a skin disease than to call it an "Eruption," and another entering every inflammatory affection of the respiratory tract in childhood under the safe heading of "Cough," and a third publicly objecting to any attempt at increased precision in the classification of pelvic suppurations, and advocating the application of the old term pelvic abscess to them all, I cannot but feel that in this matter of diagnosis modesty and caution may be carried too far.

ABSCESS IN THE CONNECTIVE TISSUE OF THE PELVIS.

The simplest form of pelvic suppuration is that which occurs in the connective tissue, and it is this form to which I should like to see the use of the term pelvic abscess restricted. It will immensely facilitate our study of this affection if we recognise, once for all, that inflammation of the connective tissue in the pelvis differs in no way from inflammation of the same tissue in other parts of the body which are more accessible to sight and touch. I was glad to see the attention of gynæcologists very forcibly called to this point by Professor William Keiller, of the University of Texas, in the *American Journal of Obstetrics* for September, 1893. Primary cellulitis, as we know it in other parts of the body, is always an acute affection, and is always septic in its origin. Professor Keiller takes, as an example, the ordinary clinical course of a septic wound of the palm of the hand. The process in pelvic cellulitis is precisely analogous. "The cellular area of the pelvis is shut off from the perineum by the pelvic fascia. This strong aponeurosis is attached to the pelvic wall between the pubic bones and bodies of the ischia, along that thickening of the obturator fascia known as the white line.

From this it passes as a continuous sheet over the levator ani and coccygeus to the vagina in front, and the rectum and coccyx behind. Behind the pubic symphysis it is closely blended with the vaginal orifice under the name of the triangular ligament. All inflammatory exudation connected with the female genitals above the vulva takes place above this strong fascia; and, as in a septic wound of the palm of the hand, the exuded serum or lymph is forced to find accommodation on the back of the hand by the strong palmar fascia and the way in which the skin is bound to it, so the pelvic fascia forces the exuded fluids in septic wounds of the deeper genitals to find accommodation in the loose tissue above it." This cellular area has for its upper boundary the peritoneum, which can be readily stripped from the whole of the pelvis except in the following situations—viz., the anterior surface and sides of the rectum, the upper part of the posterior wall of the vagina, the posterior surface and fundus of the uterus, the anterior surface of the body of the uterus, and the posterior surface of the bladder. As all these parts where the peritoneum is firmly attached are situated more or less in the middle line, it follows that the cellular area of one side scarcely communicates with that of the other, except along the tract which lies between the upper part of the cervix and the bladder, so that cellulitic exudations are mostly limited to one side. The most common source of such exudations is septic absorption through lacerations of the cervix and of the upper part of the vagina occurring during labour, the latter accident accompanying the use of the forceps much more frequently than is supposed. I have over and over again, in cases of pelvic cellulitis seen in consultation, found wounds of the vagina that had been entirely unsuspected by the medical practitioner in attendance, and that had evidently been caused by the projecting edge of one of the blades of the forceps. Such wounds, if they remain aseptic, readily heal; but it often happens that septic matter finds its way into them, and then pelvic cellulitis results. Only less important than parturition, in respect to the etiology of this affection, are the various surgical measures practised on the vagina and cervix. Before the necessity of rigid aseptic precautions was understood and generally acted upon, the most trifling surgical proceedings in these parts were apt to be followed by an attack of cellulitis. With regard to abortion, I am inclined to believe that septic infection following abortion seldom, if ever, takes the form of pelvic cellulitis, for the simple reason that there being no over-distension of the cervix or wounding of the vagina by the use of instruments, injuries to those parts are less likely to occur. This impression is abundantly borne out by my own experience. In examining the records of St. Thomas's Hospital for the past five years, I find that during that period there have been twenty-two unequivocal and uncomplicated cases of cellulitic abscess in the pelvis. Of these not a single one followed abortion. Twenty-one were the result of parturition, and the twenty-second — the cause of which was not discovered — occurred in the fifth month of pregnancy.

In connection with this subject of abscess in the pelvic connective tissue, Prof. Keiller very properly calls attention to the rôle played by the lymphatic vessels and glands. He points out that nothing is more common, as the result of a neglected septic wound of foot or hand, than to have a suppurating gland in the groin or axilla, and asks if it is "to be expected that the pelvic glands will always escape in vaginal or cervical wounds?" I feel as certain as he does that they do not escape, and I can call to mind several cases where, from the position of the abscess, I have no doubt that there was suppuration of the hypogastric glands—those, namely, which surround the iliac vessels at the sides of the pelvis and receive the lymphatics from the cervix and the upper three-fourths of the vagina. "Of course," as Prof. Keiller says, "we cannot palpate a large tender gland" in such a situation, "and, for this reason we are very apt to forget its presence."

Where do cellulitic abscesses in the pelvis usually point? In the great majority of cases the spread of the inflammation is in a forward direction, from the base of the broad ligament, where it starts, to the connective tissue lying beneath the peritoneum which forms the floor of the anterior pelvic fossa, stripping up the peritoneum where it becomes reflected on to the anterior abdominal wall and forming a broad strip of induration along and parallel with the upper border of Poupart's ligament. When suppuration occurs, the skin over the induration gradually becomes œdematous, and pointing usually occurs at a spot almost immediately above the centre of Poupart's ligament. It will be seen from the accompanying table that, of the twenty-two cases of uncomplicated cellulitic abscess treated during the last five years in the women's ward at St. Thomas's Hospital, the abscess pointed above Poupart's ligament in eighteen, nine times on the right side and nine times on the left. The inflammation is often described as "following the course of the round ligament," but I know of no evidence to shew that the round ligament plays any part in determining the course of the inflammation. The study of frozen sections has taught us that, at the end of pregnancy, the broad ligaments have been drawn upwards by the growing uterus, so that the base of the ligament is at the brim of the pelvis, and the peritoneum no longer descends laterally into the pelvis at all. The whole of the lateral space below the pelvic brim, is, at this period, occupied by cellular tissue, the quantity of which has become enormously increased (see "Barbour's Sectional Anatomy of Labour," pp. 16 to 18). There is therefore no need to invoke the intervention of the round ligaments to account for the inflammation passing forwards from the base of the broad ligament to the tissues just above Poupart's ligament. These parts already lie in close juxta-

TABLE I.

CELLULITIC ABSCESS IN PELVIS, 1889-93.

Pointed above Poupart's ligament,	Right side	9	
	Left side	9	
			18
Pointed over iliac crest			1
Opened before pointing occurred ; abscess situated on posterior wall of pelvis			3
			22

position and the extension of the inflammation from one to the other really needs no other explanation.

In exceptional cases the inflammation passes round to the loose tissue in front of the bladder and the abscess points above the symphysis, or, mounting up between the anterior parietal peritoneum and the sheath of the rectus, points at the umbilicus. In three of the twenty-two cases tabulated the abscess formed at the back, instead of at the front, of the pelvis, probably owing to implication of the hypogastric glands, and was opened by making an incision above the anterior superior iliac spine and dissecting inwards, beneath the peritoneum, to the pelvic brim. It is probably in cases of this kind that the suppuration occasionally extends upwards along the subperitoneal tissue of the iliac fossa and even into that of the loin, pointing either at the iliac crest, as in one of the cases in the table, or above it. The text-books speak of the pus, in such cases, following the course of the psoas muscle, but when matter burrows along the psoas it is not from a cellulitic abscess but from dead bone. It is along the blood-vessels and other parts, such as the ureter, that actually lie *in* the connective tissue of the pelvis, and are accompanied by a prolongation of it as they enter and leave the pelvis, that the pus finds its way.* This is not only true of the cases in which suppuration extends to the iliac fossa and the loin, but also of those where the pus leaves the pelvis by the sciatic notch, or, passing beneath Poupart's ligament, points in Scarpa's triangle. In the former case it follows the course not of the obturator tendon but of the sciatic and gluteal vessels, and, in the latter, it is the femoral vessels, and not nerve or tendon, as is sometimes stated, that direct the course of the abscess.

It is commonly stated that cellulitic abscesses frequently burst into the rectum, the vagina, and the bladder. This statement appears to me to rest on very slender foundation. Many of the cases quoted in its support belong to an era when little was known of the pathology of pelvic inflammation, and on carefully reading them in the light of our present knowledge it is easy to see that at least a considerable number reported as cellulitic abscesses were really cases of intra-peritoneal suppuration originating in suppurative disease either of the tubes or ovaries. This is notably true of a case of my own, published twenty-two years ago, which, though I have now no doubt whatever as to its having been a case of intra-peritoneal suppuration from acute tubal disease, was described, in accordance with the crude gynæcological pathology of the time, under the head of pelvic cellulitis, and takes its place in Delbet's valuable monograph as a well-authenticated instance of the spontaneous opening of a cellulitic abscess into the rectum. At the same time it is only fair to say that there does not appear to be any anatomical reason why cellulitic abscesses should not occasionally discharge themselves into the rectum, the vagina, and the bladder, and that some of the cases in Delbet's collection appear to be genuine examples of such an occurrence.

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* See Anderson (W.) and Makins (G. H.) "The Planes of Subperitoneal and Subpleural Connective Tissue, with their Extensions." (*Journal of Anatomy and Physiology*, vol. xxv., part 1. Oct., 1890, p. 78.)

The next table shews, in regard to the twenty-one cases in which cellulitic abscess followed parturition, the period that elapsed between delivery and the pointing or opening of the abscess. It will be seen that, judging from the small number of cases here recorded, the usual time for the abscess to point is between the seventh and the twelfth week. The earliest period at which pointing occurred was five weeks, the latest fourteen.

TABLE II.

PERIOD AFTER DELIVERY WHEN ABSCESS POINTED OR WAS OPENED.

Over 5 and under 6 weeks	1	Over 10 and under 11 weeks	2
„ 6 „ 7 „	4	„ 11 „ 12 „	2
„ 7 „ 8 „	2	„ 12 „ 13 „	1
„ 8 „ 9 „	3	„ 14 „ 15 „	1
„ 9 „ 10 „	5	Total ..	21

The treatment of cellulitic abscess in the pelvis—*i.e.*, of true pelvic abscess—is summed up in two words—incision and drainage. Abdominal section is here entirely uncalled for. The abscess should be opened as soon as ever fluctuation is detected or there is the faintest indication of pointing. In ordinary cases the drainage tube is only required a very few days. Unlike other forms of suppuration in the pelvis, cellulitic abscess, in my experience, tends, when once the matter has been set free, to complete and rapid recovery. I have never seen troublesome sinuses form, and the tendency to lateral displacement of the uterus from subsequent contraction of cicatricial tissue has, I believe, been much exaggerated. This affection offers no bar to subsequent conception, and when pregnancy again takes place, its normal course is not interfered with. All this is in strong contrast to what occurs after other forms of pelvic suppuration.

I have had no experience of cellulitic abscesses pointing in the vagina, and therefore have never had occasion to open one there. Frequently I have found, in cases of pelvic inflammation, soft fluctuating swellings depressing the vaginal vault both laterally and posteriorly; but such swellings have invariably proved to be other than cellulitic; and I have often had cause to be thankful that I had not been tempted to open them from below.

When I said just now that abdominal section was never required in cases of cellulitic abscess, I had not forgotten Mr. Lawson Tait's historical paper read before the Royal Medical and Chirurgical Society in 1880. The cases of pelvic abscess, however, that were described in that paper were not cellulitic, but were examples, apparently, of suppurating hæmatoma of the broad ligament, and, as such, do not come within the category of which I have been speaking. They belong, rather, to the group with which I come now to deal, and of which I agree with Mr. Tait in believing abdominal section to be the only proper treatment.

OTHER FORMS OF PELVIC SUPPURATION.

Passing now to other forms of pelvic suppuration, it is desirable, in the first instance, to obtain some idea of their relative frequency. With that object I have tabulated 83 cases in which I have performed abdominal section and found suppurative disease within the pelvis. The number is not large, but it is sufficient to give some indication of the main sources of intra-pelvic suppuration and of their relative frequency. The 83 cases may be classified as follows :—

TABLE III.

Purulent salpingitis (including pyosalpinx)		37
Purulent salpingitis, with suppurating cyst of ovary (eight communicating)		13
Suppurating cyst of ovary		17
Tubercular disease : of tube	3	
of ovary	3	
of tube and ovary	1	
		7
Disease of vermiform appendix		1
Suppurating retro-peritoneal cyst		1
Suppurating lumbar gland		1
Undetermined		6
		83

From this table it is abundantly clear that purulent salpingitis is much the most frequent source of intra-pelvic suppuration. It was met with in upwards of 60 per cent. of the cases. In 44½ per cent. no other suppurative disease existed, and in the remaining 15½ per cent., although associated with suppurating cyst of the ovary, there was strong evidence of the suppurative change in the ovary being secondary to the purulent inflammation of the tube. Having so recently spoken of the pathological importance of the Fallopian tubes in connection with pelvic peritonitis, I need not on this occasion further insist upon it. I may, however, point out that the reason why there is no separate mention, in the table, of cases in which encysted intraperitoneal collections of pus were found is that such collections are almost invariably a mere complication of purulent salpingitis. We are in the habit of thinking of suppurating Fallopian tubes as closed sacs of pus, the pus being pent up in the tube by occlusion of the abdominal ostium. But it must be remembered that in the earlier stages of purulent salpingitis the fimbriated ends are open, and the pus is free to discharge itself into the peritoneal cavity. In a paper recently read before the Obstetrical Society of London I described a case of gonorrhœal salpingitis in which the fimbriated ends of both tubes were open, and were discharging their purulent contents into Douglas's pouch, which had become closed in by adhesions. The pouch formed a little reservoir of pus, fed by two supply pipes and with no outlet. Had the case been allowed to go on, no doubt ulceration into the rectum would have taken place. It was particularly interesting to see one of these intra-peritoneal collections of pus in actual process of formation.

SUPPURATING CYSTS OF THE OVARY A FORM OF PELVIC SUPPURATION FREQUENTLY UNRECOGNISED.

Next to purulent salpingitis the most common form of pelvic suppuration is suppurating cyst of the ovary. The frequency with which acute pelvic peritonitis is due to the presence of small suppurating ovarian cysts—which, owing to their size, had not previously been known to exist—is, I believe, not generally recognised. At any rate, it has been quite in the nature of a revelation to me as case after case has occurred in the course of my own work. I published in the Hospital Mirror of the *Lancet* of July 2nd and 9th, 1892, a series of six such cases, all of which happened to be under my care at one time. In two of them the disease was bilateral and the cysts of considerable size; yet not even in these had any abdominal swelling been observed previous to the severe attack of pelvic peritonitis for which the patient sought admission to the hospital.

When peritonitis occurs in a patient with an ovarian cyst large enough to attract attention as a distinct abdominal swelling, it is easy enough to recognise that the peritonitis is due to inflammation of the cyst; but when such an occurrence takes place in a patient not known to have ovarian disease, the source of the inflammation is almost certain to remain unsuspected, and the swelling subsequently observed is almost equally certain to be regarded as purely inflammatory, and unconnected with pre-existing disease. These cases are invariably sent into the hospital as cases of acute pelvic cellulitis. I feel sure that even when the abdomen has been opened and the suppuration discovered, the true nature of the case has not always been made out. Many instances in which a collection of pus has been opened and the cavity drained, and in which the operator has been unable to satisfy himself as to the precise seat of the suppuration, have, I have little doubt, been cases of suppurating ovarian cyst. The matting together of adjacent parts is, of itself, sufficient to introduce an element of confusion, and to render recognition difficult.

But there is one condition that contributes to increase this difficulty more than any other, and that is, the tendency of an ovarian cyst, when it becomes inflamed while still small enough to lie in the pelvis, to contract adhesions to the broad ligament, and, in the course of its enlargement, to draw the stretched and thickened broad ligament over it until its anterior surface is completely concealed by it as by a hood. Until an operator becomes familiar with this phenomenon the condition that presents itself to his eye and touch is exceedingly puzzling and misleading. What often happens is that, deep-seated fluctuation being detected, a trocar is passed *through the broad ligament* into the suppurating cyst behind it, and the cyst is emptied and drained under the impression that it is a collection of pus either in the broad ligament or behind the parietal peritoneum. Operators who have had frequent occasion to open the abdomen in cases of obscure pelvic suppuration will, I feel sure, recognise the truth of this description. The proper treatment of such cases is not to tap the cyst, but, having obtained access to it by the careful and patient separation of adhesions, to enucleate it, if possible, entire, until there remain only the normal attachments, which can then be treated as a pedicle and the whole cyst removed.

With regard to the cause of the suppuration in these cysts, the evidence is strongly in favour of the view that in the great majority of cases the suppurative change in the ovary is secondary to purulent salpingitis. Of the thirty cases in which suppurating ovarian cysts were discovered it will be seen from the next table that active purulent salpingitis was found in thirteen and chronic salpingitis in twelve.

TABLE IV.

SUPPURATING OVARIAN CYST (INTRA-PELVIC).

Directly communicating with suppurating Fallopian tube ...	8
Adherent to suppurating Fallopian tube	5
Adherent to inflamed Fallopian tube	12
Adherent to ulcerated vermiform appendix	1
Source of infection undetermined	4
	30

In the latter the conditions of the parts around shewed that the tubal inflammation though now chronic and comparatively quiescent had originally been acute and severe. The fire had here, as it were, died out, though in the neighbouring structures, to which the flames had extended, it was still raging. Thus 83 per cent. of the cases of suppurating ovarian cyst were associated with salpingitis If it be asked why may not the tubal disease be secondary and the ovarian primary, I reply that if that had been the case one would have expected the mucous lining of the tube to be the last part affected and the least; in other words, one would have expected evidence that the inflammation of the tube had passed from the peritoneal coat inwards rather than from the mucous coat outwards. In eight instances the suppurating tube and the suppurating ovarian cyst were, at the time of operation, in direct communication owing to ulceration of the cyst wall and perforation into the adherent tube. Whether the cystic degeneration in the ovary ever itself begins as an indirect result of inflammatory changes involving the outer coat of the ovary I cannot say; but certainly, in the majority of cases, it is much more likely that there already existed a small cyst, the contents of which became infected from the adjacent tube and underwent suppuration; and that under these circumstances the cyst grew so rapidly as to be easily mistaken for a large abscess in process of formation Of the five remaining cases of suppurating ovarian cyst, in one the cyst had evidently become infected from a diseased vermiform appendix; whilst in the remaining four the source of the suppuration was not discovered. It is of course possible that in these the cysts became infected from their propinquity to the rectum.

To the remaining cases of intra-pelvic suppuration enumerated in the table, I propose only to allude very briefly. The subject of tubercular disease of the uterine appendages—of which there are seven cases on the list—is one of extreme interest, but is much too large to be adequately dealt with on the present occasion. I would merely say, in passing, that when the disease is limited to these parts, or when the only other manifestation of the disease is miliary tubercle of the peritoneum, removal of the diseased appendages is not only a justifiable operation, but is frequently attended with the most satisfactory results. The female pelvis is one of the situations where we are happily able, when the condition has been discovered in time, to rid our patients of the disease before it has become a focus of general tubercular infection.

The case in which an intra-pelvic suppuration was found to be due to a diseased appendix vermiformis is, of course, one that does not properly come within my province as a gynæcologist. It happened, however, that the acute attack of peritonitis for which the patient was admitted occurred a few days after parturition, and was naturally thought to be connected with that process. As it is only under exceptional circumstances that such cases come under my care, it is obvious that my individual experience affords no guide to a correct estimate of their relative frequency.

The six cases in which the seat of the suppuration was not definitely made out occurred in the earlier part of my work, when, having not yet attained the boldness that comes of experience, I was content to empty and drain any deep-seated collection of pus in the pelvis without attempting to separate and remove the suppurating organ.

FISTULÆ AS A COMPLICATION OF PELVIC SUPPURATION.

I propose to devote the remainder of the time at my disposal to a consideration of those cases in which collections of pus within the pelvis have burst into the rectum, the genital canal, or the bladder, and in which, the opening being insufficient and the evacuation of the pus consequently incomplete, a sinus remains, through which there is a constant or intermittent purulent discharge. From amongst a number of such cases that have come under my observation I have selected for mention a single example of each of the main varieties of this form of fistula, beginning with the most common one—that, namely, which occurs as the result of the bursting of a collection of pus into the rectum.

Case I. A woman, aged 35, who had been in good health all her life, and was entirely unaware that she had a tumour of any kind, was attended in the Maternity Department of St. Thomas's Hospital in her eighth confinement. The presentation was an occipito-posterior, and, the head was arrested above the brim. After failure with the forceps, delivery was easily effected by version. On the sixth day the temperature, which had hitherto not exceeded 99·2° F., rose to 100·2° F. The patient had no pain of any moment until the seventeenth day, when she complained of a dull aching pain in the lower part of the back and the outer part of the left thigh. There had been no rigor, or sickness, or headache, or constipation, but the patient was losing flesh; her appetite was poor; and she complained of much thirst. On the nineteenth day there was noticed for the first time some swelling in the abdomen. The temperature, which had been gradually rising for a fortnight, was now 103°. Accordingly, on the following—*i.e.*, on the twentieth—day the patient was admitted into the hospital.

The note on admission describes her as thin, pale, and sallow. The chest sounds were normal. The abdomen was irregularly distended. The uterus reached to within three inches of the umbilicus, and was pushed forwards so as to form an obvious projection of the anterior abdominal wall. Both uterus and bladder were drawn upwards so as to lie entirely above the pubes. On deep palpation, behind and above the rounded upper margin of the uterus could be felt a swelling, imparting to the hand the sensation of a tense cyst.

On vaginal examination, a centrally-situated swelling, continuous with that felt behind the uterus in the abdomen, was found to occupy the hollow of the sacrum, distending the pouch of Douglas. The swelling was of unequal consistence, and in one part gave a sense of fluctuation. The temperature ranged from 99° F. in the morning to 101° F. in the evening. The urine was healthy.

It was thought at first that the swelling might be a hæmatocele, but when the patient had been nearly three weeks under observation, a large quantity of very fœtid pus was passed by the rectum.

The temperature at once fell to normal, and next day there was a marked diminution in the size of the swelling. Pus continued to be passed with each evacuation for four days. After an interval of six days the temperature again rose and the size of the abdominal swelling became evidently increased. Next day there was a further escape of pus from the rectum, and this continued, without diminishing the temperature, for four days, when abdominal section was performed. The swelling proved to be a suppurating dermoid cyst of the right ovary. The cyst was everywhere adherent, and the process of separating and removing it was one of extreme difficulty, occupying two hours and a half. Notwithstanding the utmost care some of the fœtid contents of the cyst escaped into the abdominal cavity. The peritoneum was subsequently flushed with hot boracic acid solution and a drainage-tube was inserted at the lower angle of the incision.

The cyst contained a compact mass of hair 4 ins. by 3 ins., some pieces of bone, and, in a separate loculus, 28 fluid ounces of thick yellow fluid which solidified on cooling. A direct communication existed between the cyst and the right Fallopian tube, which was nine inches in length and greatly thickened, and was in a state of acute suppurative inflammation. The cyst had also opened by ulceration into the rectum.

Convalescence was somewhat protracted, but no pus was again seen in the evacuations, and none of the contents of the bowel ever escaped through the wound. The patient left the hospital well in ten weeks.

It is now upwards of two years since the operation, and the patient, whom I saw a fortnight ago, remains perfectly well.

The next case is one in which a sinus existed in the vault of the vagina for eight months, and was found at the operation to communicate with one of a series of small suppurating cysts of the right ovary. It is of special interest, (1) as being a typical example of the cases that have continually been described by observers who do not operate as instances of cellulitic abscess bursting into the vagina; and (2) as affording an unanswerable argument in favour of dealing with such cases by abdominal section rather than by enlarging the sinus from below. The case has already been published in detail,* and I shall therefore be content with giving it here in abstract.

Case 2. A young married woman, aged 22, was delivered of her first and only child at the age of 19. For about twelve months after the labour she suffered from pain of a constant character, but not always equally severe, in the right iliac region. She then remained well for some few months, when the pain returned; and one day, whilst seated in a chair, she felt a sudden discharge from the vagina. The discharge was thick, fœtid, yellow in colour, and very profuse. This occurred about eight months before she came under my care The discharge had continued, with short intervals, during the whole of this time, but since the first day had not been offensive. Acute symptoms set in a week before her admission. On vaginal examination, the uterus was found in normal position, the cervix fixed. The pouch of Douglas was occupied by a hard rounded mass, extending further to the right side than to the left. The vaginal roof on the right side was slightly depressed There was dense hardness in the tissues at the posterior vaginal reflection and immediately in front of the cervix. At the upper part of the posterior vaginal wall was a small opening, the size of a pea, with indurated margins.

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* Obst. Soc. Trans., Vol. 34 for 1892, p. 387.

The diagnosis was vaginal fistula communicating with the inflamed and suppurating right uterine appendages.

Abdominal section was performed. The pelvic viscera were densely matted by old adhesions. The broad ligaments were hard, rigid, and thickened. A soft oblong mass, consisting of the right ovary and Fallopian tube, dipped down into Douglas's pouch, where its dense adhesions were separated with difficulty. On examination, the diseased ovary was found to measure 2¼ in. by 1¾ in., and to consist, on section, of a number of inflamed cysts, many of them full of pus and all with hyperæmic walls. An opening large enough to admit a goosequill, and surrounded by granulation tissue, was found on that part of the surface of the ovary which had lain most deeply in the pelvis. This opening communicated directly with one of the abscess cavities in the substance of the ovary, and pus was seen exuding from it. The right tube was attached to the ovary, and was elongated. On section, its canal was found empty and its lining membrane healthy.

Five weeks after the operation the patient left the hospital well. There had been no further purulent discharge from the vagina. Ten months later no swelling could be detected, on vaginal examination, on either side of the pelvis. Menstruation was regular, and, except for occasional attacks of pelvic pain unaccompanied with rise of temperature, the patient felt well and strong.

Had the treatment here consisted of enlarging the sinus in the posterior wall of the vagina, only one cyst would have been laid open, and the patient would have been left with several others to give trouble later on.

The attacks of pain described by the patient as having occurred at intervals since the operation are probably to be explained by intestinal or omental adhesions at the site of operation.

The next case, like the first that I related, proved to be a suppurating dermoid of the ovary, situated deeply in the pelvis, but instead of ulcerating through into the rectum, it opened into the cervix uteri, resulting in a fistula in that situation. I published the case in full in a paper in the 17th volume of the St. Thomas's Hospital Reports, and shall here merely give an abstract of it.

Case 3. A married woman, aged 36, was admitted into hospital nineteen weeks after her fourth confinement. Her first three labours had been natural; the last one had been very difficult, delivery having been accomplished by the use of forceps, and then only after prolonged effort. She became feverish soon afterwards, and had much vomiting. The lochia were arrested. A fortnight after the labour a purulent discharge took place from the vagina. This went on for a few days, when, the flow not being very free, an opening felt on making a vaginal examination was enlarged by the medical attendant. The purulent discharge continued for thirteen weeks, gradually diminishing in quantity. It then suddenly became more profuse and very offensive, and the opening was again enlarged. Not long after this a quantity of horribly offensive pultaceous material passed, together with a quantity of hair three or four inches in length. This offensive discharge went on up to the time of her admission. The patient had endeavoured to occupy herself in the house, but found that she was becoming thinner and weaker, and that she was never safe from a sudden outburst of ill-smelling discharge. An abdominal swelling had been noticed for the first time about six weeks after the confinement.

On admission the patient, who was sent in as a case of pelvic cellulitis, was pale, wasted, and very ill. She had a rounded tumour in the right iliac region, reaching to the level of the umbilicus. The posterior fornix of the vagina was obliterated; the finger on entering the vagina passed directly into the cervix uteri. On the inner and posterior wall of the cervix could be felt a lacerated depression, such as would be caused by the passage of a moderate-sized trocar. No opening was discoverable in the vaginal wall. There was a hard rounded mass in Douglas's pouch, depressing the vaginal roof.

On opening the abdomen the swelling proved, of course, to be a suppurating dermoid of the ovary. The tumour was carefully and with much difficulty detached all round, a quantity of highly offensive pus flowing from the vagina during the manipulation. Before separating the adhesions in the neighbourhood of the perforation, the pedicle was divided, in order that the tumour might, after separation, be lifted quickly out, and the inevitāble soiling of the pelvis from the escape of the cyst contents reduced to a minimum. As the tumour was removed a gush of highly offensive gas escaped with a distinct whiz. The peritoneal cavity was repeatedly douched, and after the abdomen had been closed and the patient had rallied a little the vagina was thoroughly douched with hot boracic lotion.

The convalescence was somewhat delayed by suppuration in the pelvis, but the patient was able to sit up in bed in three weeks, and at the end of six weeks she left the hospital well. Five weeks later she presented herself looking remarkably well.

This case, like the first, is an instance of suppurative inflammation of an unsuspected ovarian cyst, closely following a difficult labour. It is easy to understand how readily the true nature of such a case may be overlooked. The probability is that, in this latter case, some laceration of the posterior wall of the cervix took place during delivery, opening up a channel by which septic infection could easily reach the tumour, which had no doubt been rendered specially susceptible owing to the bruising it had recently undergone.

The next and last case that I shall relate is to my mind the most interesting of all. It was sent into the hospital as a case of pelvic cellulitis following influenza and complicated with abscess which had burst into the bladder.

Case 4. The patient, a woman aged 32, had been married nine years but had never been pregnant. She had had an attack of inflammation in the right side of the lower part of the abdomen three years previously, the attack having been preceded for a few days by a yellow vaginal discharge After this she had remained well until six months before her admission, when she had what was supposed to be an attack of influenza, with shivering and perspiration but no pain. She kept her bed for a fortnight and then went into the country. Whilst there, she noticed some thick yellow matter in the urine, which had continued to appear ever since, that is, for a period of five months, the daily quantity being estimated by the medical attendant to average about half a fluid ounce. There had been frequency of micturition but no dysuria. The general health had been but little affected. Menstruation had been regular. She had suffered pain from time to time in the right iliac region, but this had never been very severe.

On examination under anæsthesia, the uterus was found of normal length, the canal directed to the left. On the right side of the pelvis a large, hard, uneven, roughly globular mass was felt, depressing the vaginal roof and extending upwards to the level of the anterior superior iliac spine. A sound introduced into the bladder was prevented by the swelling from passing beyond a very short distance in the middle line, but passed easily to right and to left of it posteriorly. The urine contained a varying quantity of pus.

It was evident that there was chronic suppuration of the uterine appendages (probably, from the size of the swelling, of both tube and ovary), and that there was a sinus communicating with the bladder. I had not yet had occasion to operate upon a case of this kind, and although I saw no other satisfactory way of dealing with it, I undertook the operation with considerable misgiving.

However, on the 8th of December of last year I opened the abdomen. After separating and drawing aside the omentum, which completely concealed the contents of the pelvis, the mass was easily seen occupying the right and central portions of the pelvis, deep down. It was covered by peritoneum, and there did not for some time seem to be any possibility of finding a break in the apparent continuity of the covering of the mass with the peritoneum of the pelvic walls. At length it was found possible to insinuate a finger behind and to the right of the uterus, and so to commence the work of separation. The thickened right broad ligament had been drawn over the anterior surface of the diseased parts, and dipped down superiorly where it was adherent to omentum and pelvic wall. These adhesions having been separated, access was obtained to the mass beneath, and, with the fingers of an assistant in the rectum to serve as guide, separation was slowly and carefully effected. The mass, when removed, proved to consist of the inflamed right Fallopian tube and a suppurating cystic ovary three inches in diameter. The firmest adhesion was in the neighbourhood of the fimbriated end of the tube. When this was separated, a quantity of soft inflammatory *débris* was set free. The tube was dilated, and its mucous membrane congested and œdematous. No pus was present in its canal. The ovary was removed without rupture. Its surface was convoluted like that of a tomato. On its under surface was a small opening, from which blood-stained purulent fluid oozed on pressure, and which probably represented the aperture of communication with the bladder. On section, it was shewn to contain two separate cysts, each of them filled with purulent fluid of a brick-red colour, and without ill-odour. One of the cysts was surrounded by indurated tissue ⅛ in. thick. The bladder was deep down, quite out of sight and out of reach, so that any attempt to close the opening in its wall was entirely out of the question. No urine escaped, and very little pus appeared to have exuded into the pelvis during the operation. It was thought prudent, however, to wash out the pelvis well with hot boracic solution. The uterus had by this time moved to its normal position in the middle line, and perched on the fundus was the normal and adherent left ovary. The left tube was adherent but apparently free from disease. On passing a catheter, a drachm or two of blood-stained purulent fluid escaped from the bladder. A drainage-tube having been inserted, the incision was now closed.

The urine drawn off up to midnight contained pus and blood. The bladder was at first emptied by catheter every two hours to prevent distension. Next day the interval was prolonged to three hours, and on the fourth day to four hours. The discharge through the drainage tube at the first dressing was turbid, and contained leucocytes. It then became chiefly serous; but later it again became purulent, though never urinous. There was some cystitis, with alkaline urine, from the fourth to the tenth day, when the urine became natural. The patient was able to sit up on the sixteenth day, and left the hospital looking stout and well at the end of two months. Notwithstanding that the general condition was excellent, there continued to be a little suppuration from the lower angle of the wound for six months, when the sinus finally closed. The patient has presented herself since from time to time, and when I last saw her, a month ago, she was in perfect health, and menstruating regularly.

I have narrated these cases with two objects specially in view. The first was to shew that when pelvic suppuration is complicated by internal fistulæ, the suppuration is not cellulitic however much it may simulate it, but is due to intra-pelvic disease that can only be properly dealt with by abdominal section. The second object I had in my mind was to shew the feasibility, even in the most unpromising cases, of complete removal of the disease, and to urge the superiority of that method of treatment over the mere emptying and draining of the suppurating cavity and the stitching of the edges of the sac to the abdominal incision.

I am painfully conscious that in offering the foregoing remarks to my professional brethren in Birmingham and the Midlands, I am addressing many who have had a far larger experience than I in the treatment of the diseases to which they refer, and before whom it would be much more fitting that I should appear in the capacity of learner than of teacher. Nevertheless I trust they will appreciate my effort to prove to them that the example they have set, in endeavouring in spite of much opposition to advance the department of medicine with which I am more especially identified, has not been altogether lost even upon the benighted Londoner.

ON PERITONITIS.*

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It would scarcely be possible in the twenty minutes allotted by the laws of the Society to readers of papers to do more than glance at some of the prominent facts and difficulties of the subject and suggest certain points for discussion. The recently-published papers by Dr. Gee and Mr. Tait would seem to have rendered it a work of supererogation to bring the subject of Peritonitis before this meeting, but it is perhaps well to discuss it while our minds are full of attention and our interest excited. My best excuse however is, that I find the disease so interesting, and the responsibility of its treatment so great, that I cannot but hope to gain from the experience of the members present.

The aspects in which I specially wish to regard peritonitis are as it occurs, 1, in tuberculosis; 2, typhoid fever; 3, as the result of perforation of any hollow viscus; 4, and finally, or what is practically from the first, general purulent peritonitis.

There is a general consensus of opinion that while the distinctive signs of the disease are pain, tenderness, and distension associated with fever, rapidity of pulse, and the facies Hippocratica, the diagnosis is often nevertheless extremely difficult. A very intense degree of peritonitis may exist without fever, without much pain, and with but little distension. Of such a nature was the case already recorded by my friend Mr. Barling and myself, where six hours after a perforation of a gastric ulcer an intense and general peritonitis was found on operation, though there had been no distension; and it had been specially noted that superficial palpation caused no pain, which was only complained of when a more thorough examination was made. The temperature, as in many other similar cases, was not raised, but the pulse became rapid and wiry, and the condition of collapse more marked than before. Operation was determined upon.

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* A paper read at the meeting of the Birmingham and Midland Counties Branch of the British Medical Association, December, 1892.

In connection with this apyrexia, it is a very common fact that we never seem to get quite so high a degree of fever in peritonitis as in most other inflammatory lesions.

A little girl (M. H.) I saw in consultation and sent into the hospital for operation had never a temperature of more than 102°, although we found her abdomen quite full of pus. Her temperature was never so high as in the case of H. H., a patient of mine in the General who suffered from tubercular peritonitis, and whose abdomen was opened by Mr. Barling with marked relief of the pain and discomfort and a satisfactory reduction of temperature. The peritonitis was nothing like so acute as in the other little girl, and very little pus was present.

Pain is a very variable symptom indeed, and one on which very little reliance can be placed. We have all seen rapidly fatal cases in which less pain was complained of than in many cases of colic; and only a month ago I had under my charge a girl who was sent into the hospital for peritonitis on account of the great pain she complained of in the abdomen. Her temperature was 101°, and it certainly looked like a case of peritonitis. She was found to have a blue line on the gums, and, as it turned out, was suffering only from lead colic. The pain, on the other hand, may be agonising.

The most important sign of the disease, and the one on which most reliance can be placed, is the distension of the intestines, meteorosis; although this, like the other sign, is not infallible, as evidenced by cases that occurred during the epidemic of influenza last year.

The facies Hippocratica associated with abdominal pain and tenderness is, perhaps, the least variable sign of a bad case of peritonitis, and should excite our apprehension, and incite us to renewed efforts for finding the cause of the disease. But, indeed, there is no pathognomic symptom; and it is only the grouping of those we have discussed that justifies the diagnosis of the disease. Of course, if there be any condition favouring the development of peritonitis, such as an operation, or the existence of a hernia which has become strangulated, the diagnosis is very easy; but the difficulty lies in those cases where no such cause is at hand; and it is precisely in these that a correct diagnosis so often means saving a life which, for lack of it, may be lost.

CAUSES.

I was taught that no case of peritonitis was idiopathic—that it was always secondary to some forms of mischief which ought to be discovered; and yet it was said that it might occur without obvious cause—or, indeed, ascertainable reason—in Bright's disease; and now the popular voice is raised in favour of the microbic theory of causation and the ever-present foces micrococcus. To me it seems that in the present, as in the past, this explanation is unsatisfactory; and it would be easy to give instances in which, so far as human skill can determine, no micro-organism can have had access to the cavity, though a rapidly-increasing purulent peritonitis has taken place. Of such a nature was the case of a child (M. P.) I saw with a suppurating abnormal cyst of the urachus. The intestines were separated from this cyst by a normal peritoneum, and no glands were present to be infected by the intestinal catarrh and so start the disease. I feel strongly that one has more right to state boldly that the disease may exist without a causative micrococcus than have those who accept the newest fashionable theory of medicine to demand an unquestioning belief in its omnipotence. On them, at any rate, should the *onus probandi* rest. I would not under-rate—I could not over-rate—the enormous value of Koch's discovery of the tubercle bacillus, and the impetus he has given to bacteriology; but I do strongly deprecate the all-importance of the *rôle* which is attributed to this and other pathogenic germs. Clinical medicine can never rest on a microscopic basis, and it will be fatal to progress if we come to be satisfied with such.

It is, of course, undoubted that a great majority of cases of peritonitis start from a neighbouring purulent or inflamed focus, such as a typhoid or tubercular ulcer, or from suppuration in a Fallopian tube; but just as in empyema—which, so far as we know, often occurs without the slightest evidence of suppuration elsewhere—so may it be in peritonitis, as in the cases of the little girls M. P. and M. H.; and a fluid effusion in the abdomen may be purulent from the first, not associated in its beginning with pus elsewhere, or if treated ***secundum artem*** at any period in its course.

I must state my very strong inclination to believe in the importance of the rôle played by the nervous system in the development and course of the disease, though no doubt this is to a large extent the substitution of one unknown quantity for another, and I am sure that upon the condition of the nervous system the prognosis very largely depends.

No patient dies, so far as I know, because a larger or smaller quantity of pus happens to be in the peritoneal cavity; and I believe that, given no persisting cause for suppuration such as an open gastric or intestinal ulcer, no patient need die if the pus be removed before adhesive or destructive inflammation has interfered with the mechanics of digestive processes.

On the other hand, it is quite certain that a patient may die very early in the course of a case, before the suppuration has weakened or the fever has exhausted. The most fatal cases are those in which the temperature may have been subnormal from the first, as in two cases of perforated gastric ulcer I have seen. They died, one in thirty hours, the other within four days of the rupture which determined the peritonitis, and the extent of this was not half so great as in the case of M. H.. nor was the amount of the pus anything like so large. They died of shock, but no doubt would have recovered from it if it had been possible to prevent the persistence of the shock by removing the peritonitis and its cause. In neither of these cases however was the shock so intense, or the conditions so alarming as in Mary W., a woman who was admitted during the influenza epidemic into the General Hospital under my charge on May 21st, 1891. She vomited over-night, and took two pills to relieve constipation. Next morning her bowels were moved at eight o'clock. Immediately afterwards she fainted, and was brought to the hospital on account of most alarming collapse. Her face was blanched, her lips bluish-white, her pulse scarcely to be felt; her respirations were infrequent and sighing, and the temperature was 96·3°. The abdomen was tympanitic, distended and tender, and great gastric pain was complained of.

Had this case occurred subsequently to that of the perforated gastric ulcer I should have had no doubt that I had a similar one to deal with, and advised operation to give a chance of life. Her condition was so urgent that I thought it advisable to give her the chance of rallying before considering other treatment, and under the influence of warmth, rest, and stimulation, she recovered.

Surely this was a case in which the stress of the mischief, probably the influenzal poison, was upon the sympathetic nerves in the abdomen, and yet the symptoms were entirely those of peritonitis. Such a case would at least justify my warning, in opposition to some who speak of the ease of diagnosis of perforation and peritonitis, that the difficulty may be great and the need of caution important.

A similar case was that of E. K., who was admitted into hospital four days later. That morning, while at work, he had fainted, after complaining of great pain in the abdomen. He was admitted in a state of great collapse, surface cold. pulse scarcely to be felt, respirations sighing (seven or eight to the minute), and temperature sub-normal. His abdomen was distended, and the pain and abdominal tenderness persisted for two days; but he left the hospital in four days more quite well, the temperature having never exceeded 99°.

In connection with these cases, and bearing on the influence of the nervous system in the causation of the disease, it is interesting to quote the remarks of Dr. Err on what he calls lipothymia without abdominal signs.

"Still more remarkable, although much less common, is the case of peritonitis attacking a healthy person, lipothymia supervening in the course of a few hours from the beginning, and any local signs of abdominal disease disappearing at the same time. The patient, when first seen, makes little or no complaint of the abdomen; it is not swollen, and can be pressed deeply without causing pain; but the skin is cold, the heart beats very frequently, no pulse can be felt at the wrist, the respirations are very frequent, the secretion of urine is suppressed. The mind is affected little or much. The patient dies on the first or second day of illness. At the *post mortem* examination, acute peritonitis is found, but not necessarily perforation of the peritoneum or disease of any other abdominal structure."

Bearing in mind these cases and this class of cases, it seems to me an impossibility not to regard the condition of the abdominal nerves as the most important element in prognosis and treatment.

Tubercular peritonitis, especially after adolescence, gets well, so far as my experience goes, in a sufficiently large proportion of cases without surgical interference; yet this should not be delayed if the progress of the case is unsatisfactory or the accumulated fluid very considerable in amount. Operation is without danger to the patient, and the prognosis of the disease is not at all unfavourable.

Peritonitis occurring in the course of typhoid fever seems to stand on a different footing altogether from other forms of the disease. It occurs in a slight degree probably in the majority of cases, and often with considerable intensity in those associated with deep ulceration.

Jenner pointed out that a single deep ulcer is often associated with constipation, and this no doubt is due to the local peritonitis about the base of the ulcer and the intestinal paralysis resulting therefrom. Whatever views one may have as to the treatment of peritonitis secondary to operation or pelvic suppuration, I have no doubt at all that purgative treatment in these cases is fraught with the utmost danger, and that the only chance is to diminish any tendency there may be to peristaltic movement of the bowels by the administration of opium, and so to minimise the risk of perforation.

Should perforation occur I fear the chance of doing good by operation is infinitely small, while the percentage of recoveries following treatment by opium is appreciable though small; though it is fair to state that Jenner never saw a case recover. This hopelessness of doing good by operation is no doubt due to the fact that when one ulcer has perforated, more are nearly ready to do the same, and any manipulation of the bowels would be the worst possible procedure.

This multiplicity of ulcers is, I fear, an argument which may be advanced against the surgical treatment of a ruptured stomach ulcer, seeing that it is common to find more than one ulcer; but it is sufficiently common to find one only to justify me in upholding with all the emphasis possible the procedure of Mr. Barling in the cases he reported to this Society two months ago.

As to the general treatment of peritonitis following operation, it is impossible, in this room, to disregard the teaching of the Birmingham school of surgery. *Obsta principia* is here, if ever, the rule, and going to meet peritonitis the practice.

Constipation, which is so often the earliest sign of this condition, is to be met by the repeated administration of small turpentine enemata, which are especially of importance if there be any or much intestinal distension, because when the intestines become cylindrical owing to distension, and press upon one another, blood is forcibly drawn into the angular spaces between them. These suction lines, as Dr. Moxon called them, shew themselves as two longitudinal lines running parallel with the attachment of the mesentery along the bowel, and are the earliest evidence of peritonitis.

As to opium, Mr. Lawson Tait recently deprecated its use because of its action on the vermicular movements of the intestines, and because it masks the real condition of the patient.

With this last I thoroughly agree so long as the diagnosis remains uncertain; but if one's mind has been made up, and it is clear that we have to deal with peritonitis the result of perforation, or a general peritonitis the result of continuity of inflammation, I think we shall be likely to give our patients the very best chance of recovery by doing anything to relieve the pain and to diminish shock. In acute peritonitis this is, I believe, the source of danger and must be dealt with before we can advise surgical interference, and for this we have no remedy so useful as opium in large doses, the use of which cannot be objected to if we have learnt the cause of the disease and know the course it is going to take.

REPORTS OF CASES.

ABSCESS OF LIVER. ABDOMINAL SECTION. RECOVERY.

UNDER THE CARE OF MR. LUCAS, F.R.C.S.,
ASSISTANT SURGEON AT THE GENERAL HOSPITAL, BIRMINGHAM.

J. H., a platelayer from Tamworth, aged 30, was admitted into the General Hospital, on August 11th, 1893, suffering from a tumour of the liver.

History.—He was formerly a private in the 11th Hussars, and has served at the Cape of Good Hope, where he suffered from dysentery three years ago. The attack lasted four months; it left him, as he thought, perfectly well. Until the last three months he has followed his occupation as a platelayer on the Midland Railway. Three months ago, whilst at work he felt very much fatigued, and was unable to finish his work. He complained of an aching pain in his epigastrium and across the chest. He has had the same symptoms ever since; the pain in the stomach gradually becoming worse, and he has been getting weaker. For the last month he has noticed a swelling in the upper part of the abdomen. Has had gonorrhœa but not syphilis. Bowels constipated of late.

Present condition.—He is a well-developed man. Complexion "muddy." Conjunctivæ slightly yellow. There is a large fluctuating swelling occupying the epigastric and right hypochondriac regions, below which the edge of the liver can be felt; it extends down to the transverse level of the umbilicus. It moves freely with respiration and does not appear to be adherent to the anterior abdominal wall. The area of dulness extends upwards to the fifth rib in the nipple line. Urine acid, sp. gr. 1010; contains a haze of albumen. Temp. 102·6.

Aug. 14th. Chloroform was administered and afterwards changed to the A. C. E. mixture. A vertical incision four inches in length was made over the most prominent part of the tumour through the outer border of the right rectus abdominis. The peritoneum was nowhere adherent. The liver was uniformly distended with a fluctuating swelling. Sponges were packed around the opening and an aspirating needle thrust into the liver, and 38 ounces of thick chocolate-coloured pus evacuated. An incision one-and-half inch in length was then made into the abscess cavity along the side of the aspirating needle. The edges of this incision were then stitched to the abdominal wound. This was done with a good deal of difficulty owing to the friable nature of the liver. A full-sized rubber drainage tube with no lateral perforations was then inserted and carefully packed around with iodoform gauze.

August 15th. Dressings much soaked. A large quantity of thick dark-coloured pus had escaped from the wound; about two ounces were also drawn off with a syringe.

August 18th. Wound has been dressed twice daily, owing to the large amount of bile-stained discharge. Temperature went up to 100·0 last night; abscess cavity therefore washed out with lot. hydrarg. perchl., 1 in 4,000. Condition otherwise quite satisfactory.

August 27th. Discharge much less; a narrower and shorter tube inserted. Temperature normal.

September 11th. Tube removed altogether. Getting up.

September 21st. Wound soundly healed. Discharged.

October 6th. Came to hospital to-day. Has regained his usual colour and is putting on flesh. Wound remains soundly healed. Liver cannot be felt. Area of dulness normal. Is going to work next week.

Remarks.—The method of treatment adopted in this case is the most severe, but undoubtedly the safest, for this class of abscess of the liver, where there are no adhesions to the anterior abdominal wall. It was quite impossible to stitch the liver securely to the edges of the wound without first aspirating the abscess and then incising. It was not easy then to insert the stitches securely. Great care was taken to prevent the peritoneal cavity becoming fouled. This was somewhat difficult, as the sponges which had been packed around the wound had to be removed before the stitches could be properly inserted. The use of a drainage tube with no lateral perforations and the careful packing around with iodoform gauze are also points to be insisted on. The result of the operation was all that could be wished, for the man is at work again in apparently perfect health in eight weeks from his admission into the hospital.

For the notes of this case I am indebted to Mr. J. R. Hickinbotham, the House Surgeon.

CASES OF PERITONITIS.

UNDER THE CARE OF MR. BARLING AT THE BIRMINGHAM GENERAL HOSPITAL.

(Abstracted from a Paper read at the Midland Medical Society Oct. 18, 1893.)

Case 1. *Suppurative Peritonitis; drainage; recovery.*

M. H., a girl aged 7 years, was admitted to the General Hospital on May 3rd, 1892, under the care of Dr. Simon, by whom I was asked to see her. She was admitted for pain and distension of the abdomen of about a month's duration. The child had suffered an attack of scarlet fever in October, 1891, and was not convalescent until Christmas. From that time she was not so robust as she had formerly been. Her present attack commenced a month before admission with pain in the abdomen, following a long walk which very much exhausted her. Vomiting followed and existed for two days, and on the third day there was diarrhœa and a temperature of 105° F. In a fortnight the child was allowed to get up. Pain in the abdomen still existed, and the bowels were constipated. In the week before coming to the hospital there was occasional vomiting with constipation, and the pain in the abdomen was very acute.

On admission, the child was very pale and wasted in appearance, the abdomen was greatly and evenly distended, and was dull all over. A fluid wave could be felt everywhere. The umbilicus was pouching out, reddened and œdematous. The superficial veins over the abdomen and thorax were very distended. The temperature was 100·6° F.

Dr. Simon made a diagnosis of purulent peritonitis, and at his request I did abdominal section. Before incising, the bladder was emptied with a catheter. The incision was in the middle line, and ended two inches above the pubes. On cutting through the deeper layers of the abdominal wall, an unusual tissue was met with, which looked like the walls of the bladder, and proved to be so on the introduction of the catheter, the organ being adherent to the abdominal wall. On opening the peritoneum a little higher up, a large quantity of pus was evacuated, estimated at four pints. No lesion of the intestine or other part was discovered as the starting-point of the mischief. The pressure of the fluid had so displaced the cæcum and ascending colon that they could not be felt by the fingers in the right iliac fossa and loin. The abscess cavity was gently irrigated and drained. The tube was removed on the seventh day, and an uneventful recovery followed. The cæcum and ascending colon slowly resumed the normal position. The patient was discharged on June 3rd perfectly well, and is now in excellent health.

The only points which need emphasising in this case are that the exhaustion of a long walk seems to have directly induced the attack, which, at its onset, was associated with diarrhœa, probably from a co-existing enteritis. Such cases as this seem to be exactly parallel to simple non-tubercular empyema, arising as a catarrhal or serous inflammation and subsequently becoming a purulent one. From this case, and from Cases 5 and 8, it appears as though the natural pointing-place of a general peritonitis, unrelieved by operation, is at the umbilicus.

Case 2. *Suppurative Peritonitis; drainage; recovery.*

C. P., male, aged 16, was admitted to the General Hospital under my care on January 6th, 1893, with pain, tenderness, and rigidity of the abdomen. Dr. F. Hues, under whose care he had been, supplied me with the chief facts as to his illness in its early stages.

The patient was seized with pain in the region of the umbilicus on December 19th. He vomited once, and the bowels acted that day. During the next days the pain continued, the abdomen was very tender and rigid, the temperature ranged from 101° to 103°, the bowels were irregular—sometimes constipated, at others acting too freely—but there was no vomiting. With rest in bed, opium, and careful dieting, improvement took place, and on December 30th the patient was much better. This day he took some bread and butter, which induced another attack of pain, and on January 1st his temperature was 103°, and the tenderness and rigidity of the abdomen had returned. On January 3rd there was complaint of pain in micturition, the urine being normal, and this pain continued to the time of operation. When I first saw the boy his temperature was 102°, pulse 96. The lower half of the abdomen was rigid and tender, and in the hypogastric region dull on percussion. No tumour could be palpated, nor was fluctuation made out.

On January 6th, the day of admission, the abdomen was opened in the middle line below the umbilicus, and about six ounces of very fœtid pus was liberated. This appeared to be well defined by adhesion, and no cause for its formation was discovered. The cavity was drained. After the operation improvement was rapid; but at the end of a fortnight, when it was attempted to leave the tube out, a small collection of pus formed, which led to an indurated patch in the left iliac region. Several times this re-accumulated, and it was not until June that the sinus finally healed and the thickening disappeared. The boy is now perfectly well.

The long-continued sinus and the small thickening in the left iliac region suggest that this may really have been a tubercular case, due to the breaking down of a tubercular gland of the iliac group—one of the cases, in fact, alluded to by Dr. Frederic Taylor in the discussion at the Newcastle meeting.

Case 3. *Localised Suppurative Peritonitis above the Umbilicus; drainage; recovery.*

M. B., female, aged 13, was admitted to the General Hospital April 6th, 1893, with a swelling at the upper part of the abdomen. Since Christmas, 1892, her friends had noticed that her skin had become of a very dark colour. Seven weeks before coming to the hospital she complained of pain in her legs, and was treated for rheumatism. A fortnight later she began to have attacks of vomiting, with pains in the abdomen, chiefly on the right side, and she was very constipated. The constipation was succeeded by a week of diarrhœa, set up by purgative medicine. Loss of flesh had been very marked recently. A fortnight before admission a small swelling was noticed in the abdomen, and it subsequently extended. There was a very bad family history of tuberculosis.

On admission, the patient was found to be a curiously dark-skinned child, considerably emaciated, and with a tender, dull, fluctuating swelling in the abdomen It projected prominently, and occupied the umbilical and part of the right lumbar and hypochondrial regions, and its dulness was continuous with that of the liver. The highest temperature noted was 102.

April 11th. An incision was made over the most prominent part of the swelling, and several ounces of pus were let out. The abscess was bounded behind, apparently, by the liver and great omentum. The utmost care was taken not to disturb the limiting adhesions. Following the evacuation there was troublesome vomiting for several days, with a quick pulse, anxious face, and slight distension; but with rigid dieting, such as is generally employed after abdominal section, these untoward symptoms subsided. A troublesome sinus remained, which only finally closed on August 29th, after a counter-opening had been made in about the right semilunar line. The child is now very well.

This case, like the next, had, as an unusual feature, a swelling projecting from the upper part of the abdomen, which, in this case, proved to be a well-localised intra-peritoneal abscess. This was doubtless the remnant of a sub-acute peritonitis, which commenced with abdominal pain and vomiting five weeks before the child came under observation. There was no positive evidence of tubercle, but, looking to the course of the illness and to the bad tubercular family history, one feels unable to say with certainty that this was not a tubercular case.

Case 4. *Suppurative Peritonitis, presenting in the Epigastrium Hepatic Abscess, Double Pyosalpinx, etc.; drainage; death.*

C. R., female, aged 20, was admitted to the General Hospital for the first time on May 13th, 1893, with a swelling of the upper part of the abdomen. Nine months before, the patient was laid up for three weeks with inflammation of the bowels, and a lump was then observed in the position of the present one, but it seems to have disappeared Three weeks before admission, pain of a stabbing character was felt in the epigastrium; and on May 11th the patient had a rigor; on May 13th, two more rigors; and her medical attendant then discovered the swelling with which she was admitted. There was no history of indigestion or of cough.

On admission, a swelling existed in the epigastrium, extending into the left and slightly into the right hypochondrium, reaching vertically from the left costal margin to within two inches of the umbilicus. The temperature was 102·5°. The cardiac, respiratory, and urinary systems were healthy. No definite enlargement of the liver could be made out.

May 17th. An incision was made through the abdominal wall over the swelling and several ounces of pus were evacuated. The pus was limited by well-formed adhesions and appeared to be immediately in front of the liver and stomach. The temperature remained elevated for three or four days, and there was some sickness, but these untoward symptoms soon passed off and the amount of discharge steadily diminished until only a sinus was left and the girl was made an out-patient.

On July 29th she was readmitted because for some three or four weeks the discharge of pus from the old wound had become profuse, and it evidently accumulated at the bottom of the sinus. On Aug. 5th this was freely opened up, a collection of pus, several drachms in amount, was let out from a cavity deep down, immediately beneath the diaphragm; the cavity found here was irrigated and packed with gauze. This was followed by a bad night and two days later by a rigor with a temperature of 103·8, and a general fulness of the epigastrium was noticed.

August 10th. The general condition being bad, the temperature remaining about 102 and the epigastric fulness increasing, a further exploration for pus was made, and a small collection was opened to the right of the previous incision and at a depth of about three inches; a drainage tube was introduced.

The note on Aug. 16th was, "During the last few days there has been a discharge of a few drachms of pus from both incisions. The temperature has been about 101, pulse from 90 to 110, respirations from 30 to 40. The patient prefers now to lie on the right side, and the chest on that side is quite fixed."

August 18th. The condition was worse, dyspnœa was severe, and great pain was complained of in the abdomen and between the shoulders. An exploring needle was introduced directly backwards for three to four inches between the 7th and 8th ribs in the right mammary line. Pus was found and a knife passed by the side of the needle evacuated several ounces of pus. A large tube was introduced.

August 25th. The general condition was bad in all respects, and empyema being suspected on the right side further operation was advised, but the patient and her friends declined to permit this, and death took place on September 1st. During my absence after August 12th Mr. Heaton kindly took charge of the case.

The following is the account of the *post mortem* examination made by Dr. Stanley:—On opening the abdomen the stomach was found displaced downwards and adherent to surrounding organs by fibrous adhesions of fairly recent formation. The stomach was firmly attached to the left lobe of the liver, and the diaphragm also adherent to both these structures on the left side. Behind the stomach and about opposite its middle portion was a considerable abscess cavity containing about eight ounces of pus. This abscess was bounded in front by the stomach, behind by the pancreas, above by the left lobe of the liver, and below by inflammatory tissue. A small cicatrix of a healed ulcer was found on the posterior wall of the stomach. The liver was much enlarged, more especially the left lobe, which was found to be converted into a large suppurating area which communicated by sinuses directly with the abscess behind the stomach. The sinus from the exterior of the abdomen in the epigastric region passed into this area. There were numerous peritoneal adhesions, especially at the lower part of the abdomen; some of these were attached to the fundus uteri and to the cæcum and appendix; and surrounding the caput coli was a large collection of pus. Both ovaries were covered by peritoneal exudation, and both tubes were somewhat distended and contained pus. There was some purulent fluid in the pelvis. The right pleura contained a large quantity of pus. The right lung was much compressed and contained a fair-sized abscess cavity which communicated with the pleural collection. The left pleura contained about twenty ounces of fluid which was not purulent.

Looking to the history of inflammation of the bowels nine months before the first operation it is probable that subsequent events may be traced to this. The rigors just before admission the first time probably indicated the lighting up of some residual local inflammation near the liver. The conditions found in the thorax at the autopsy were secondary to the operative interference on August 5th, when a collection of pus in contact with the under surface of the diaphragm was let out. From this time nothing but disaster followed, and it was impossible at the autopsy to say where the original mischief started, and how much of what was discovered at the examination was due to the surgical interference and what to the original disease.

Case 5. *Suppurative Peritonitis, ? tubercular; spontaneous opening; subsequent drainage; recovery.*

W. M., male, aged 8 years, was admitted to the General Hospital July 30th, 1893, in a very emaciated condition, with a foul-smelling discharge of pus from the umbilicus. The illness commenced about eight weeks before with headache and pain in the abdomen, lasting for a week or so, and then vomiting set in, which lasted some time and was associated for a fortnight with diarrhœa, the motions being described as like those of typhoid. The abdomen then began to swell, it became tender, the surface œdematous, and the umbilicus reddened. A few days before admission the red skin gave way and pus had escaped ever since and had occasionally had bubbles of gas mixed with it but never any fæcal matter.

On admission the child was found to present the most typical features of the fair-haired strumous type. He was very wasted and hectic, and there was a constant oozing of foul pus from two sinuses, one at and the other just above the umbilicus. A collection of pus was found in the left iliac and lumbar regions, which on pressure emptied through the sinuses referred to, and on the right side of the abdomen in the iliac and lumbar regions indurated patches could be felt. On July 31st the above collection was drained by incision directly over it and the discharge soon began to diminish and to lose its abominable odour. The temperature remained practically normal The patient gained weight rapidly, and by August 28th the wounds had healed. At present the boy is in excellent health. Some enlargement of the lymphatic glands can be felt in the iliac fossa and a little thickening beneath the scar of the incision.

From the child's appearance, the indurated patches felt in the abdomen, and from the condition of some of his glands now, and from the history of his illness, I incline to regard this case as tubercular in origin, but it is not possible to speak positively on this point.

The remaining four cases were all ***undoubtedly tubercular.*** Only three of them were treated by drainage, and the fourth is related to shew what can be done by general treatment and that drainage is not always called for.

Case 6. *Acute Tubercular Peritonitis; drainage; recovery.*

H. H., female, aged 16 years, was admitted to the General Hospital October 10th, 1893, under the care of Dr. Simon, for illness of two weeks' duration, consisting of headache, pain in the abdomen, and abdominal distension. Her illness began with sickness, loss of appetite, and shivering. Pain in the abdomen followed.

On admission, the temperature was 104·5, pulse 72, respirations 30. The girl was well-developed; she complained of pain in the abdomen, which was distended and resonant; the bowels were constipated; there was neither vomiting nor nausea. The urine—about 30 ounces in 24 hours, of good sp. gr.—contained a haze of albumen. The history of the following few days was one of hectic fever, reaching to about 102 in the evening; occasional vomiting, tenderness and distension of the abdomen, and constipation.

On October 19th fluid was detected in the abdomen, which was rigid and tender; the tongue was glazed and dry; the face was flushed and heavy-looking, and the patient was very drowsy and apathetic—in fact, in what is spoken of as the typhoid state. At this time I was asked to see her by Dr. Simon; and concurring in his diagnosis of tubercular peritonitis, I opened the abdomen on October 21st below the umbilicus. Intestine was found adherent to the parietal peritoneum, and after these adhesions had been broken down, a considerable quantity of viscid serum escaped, and numerous tubercles were noticed on the intestine. Further adhesions were broken up, and the peritoneal cavity was thoroughly flushed with hot water, and a glass drain was inserted into the pelvis.

The account of the next nine days was one of great improvement; the temperature ruled lower, the typhoid condition was much less marked, there was less pain and tenderness, and no vomiting. Each day turbid serum, varying from 2 drachms to 2 ounces, was drawn out of the tube, and on the sixth day so little had accumulated that the tube was removed; but it had subsequently to be replaced.

On October 31st a sharp attack of cystitis came on, probably from the use of the catheter the few days following the operation.

Subsequent to this there was occasional vomiting, some pain in the abdomen, and the temperature ran up in the evening somewhat higher than it had been doing, reaching at times to 101. This unsatisfactory state lasted until the end of November; the wound was still partly unhealed; the lower part of the abdomen was painful and tender; the temperature in the evening was often over 103.

On December 2nd, the patient, then being at the chronic hospital under the care of Dr. Short, was put on quinine (3 grs. nightly), and with this the evening temperature markedly improved, and at the end of a week became practically normal. From this time on there was steady improvement in all ways. The weight increased from 6 st at the end of December to 7 st. 5 lbs. at the end of April, 1893, at which time the wound was healed and the cystitis had cleared up.

The girl is now in excellent health, and the condition of the abdomen is in all ways satisfactory, except that there is a tendency to hernia at the site of the incision.

Case 7. *Suppurative Tubercular Peritonitis ; drainage; death.*

H. C., male, aged 20 years, was admitted to the General Hospital, under Dr. Simon, on March 16th, 1893, for pain in the abdomen, weakness and emaciation after an acute illness. The patient had always been delicate, and in November, 1892, he got wet through and sat for some time in his wet clothing. Following this he had pain in the region of the liver, and he went to a doctor in December, who told him he was walking about with typhoid fever, and treated him accordingly. Since this time he had not been well, but had grown thinner and had suffered much and constantly from pain in the abdomen.

On admission, the patient was very emaciated. The abdomen was barrel-shaped, distended, and very tense at the lower part, where the pain was most severe, and there was a tympanitic area in the hypogastrium, not altered by movement, or by the emptying of the bladder. The patient vomited occasionally, and his temperature reached to 102 or 103 at night. Looking to the history, to the abdominal pain, the distension of the abdomen, the vomiting, and the curiously tympanitic area in the abdomen, Dr. Simon and myself came to the conclusion that pus was located in the abdomen, and that its presence was obscured either by intestine matted in front of it, or by free gas floating on pus.

On October 20th the abdomen was opened in the usual situation, and there was quite a rush of most fœtid gas, and this was followed by a large quantity of brownish-coloured pus of such appearance and odour as to make us think that it arose from perforated gut, but no actual fæces escaped; the patient simply flickered out on the fourth day after the operation.

The autopsy shewed much matting and adhesion of the intestine to the abdominal wall; the peritoneum and omentum were studded with tubercles; the liver was adherent to the stomach and diaphragm, and had tubercles on its surface; the kidneys contained tubercular nodules; both lungs were in an advanced tubercular condition, with extensive cavity formation.

Case 8. *Tubercular Peritonitis; drainage; fœcal fistula eventually formed.*

M. E., female, aged 5, was admitted to the General Hospital July 20th, 1893, with distension of the abdomen, redness at the umbilicus, and a certain amount of fever. About a month before admission the child's mother noticed that her abdomen was swollen, and at the end of three weeks the umbilicus became red. There had been rapid wasting.

On admission, the abdomen was rather tender, and contained a considerable amount of free fluid. The skin at the umbilicus was red, œdematous, and rather prominent. The child looked emaciated, and ill.

July 21st. Abdominal section was performed below the umbilicus, and a considerable amount of clear serous fluid was evacuated, tubercle being found on the intestine. Various pockets containing rather turbid fluid were opened up by the fingers breaking down adhesions. A glass drain was inserted after irrigation. The temperature for the next few days was irregular, but there was generally some fever at night, and on one occasion this reached 103. The fluid drained away at first was serous, but later became sero-pus. The drain was removed eight days after the operation, as there was scarcely any discharge. After this there was a tendency to sickness at times, to pain in the abdomen, and occasionally there was distension. The temperature remained irregular, running up to about 100 or 101 in the evenings, whilst the general nutrition was unsatisfactory.

The child was transferred to the chronic hospital; and on September 8th I learn that a fæcal fistula has formed at the seat of the incision, which still continues patent, and the child is going down hill rapidly.

(The patient has since died.)

Case 9. *Tubercular Peritonitis; large ascitic collection; recovery without drainage.*

J. G., male, aged 19, was admitted to the General Hospital on September 26th, 1893, with a very distended abdomen, and œdema of both legs and of the scrotum. The patient had been under my care several times previously with tubercular troubles; first of all with osteitis of a metacarpal bone which set up mischief requiring excision of the wrist in March, 1892. Three months after this the right epididymis became tubercular, and as on this side the patient suffered from an irreducible inguinal hernia, castration was performed. It was then found that the hernial sac was covered with tubercles. The wound healed rapidly and patient left the hospital in three weeks, returning about a month later with ascites. He had noticed in the three weeks previous to admission a rapid increase in the size of his abdomen.

On admission there were the usual evidence of ascitic collection, enlargement of the belly, fluctuation and dulness shifting with the position of the body, but no solid masses could be felt. The legs, especially the right, were œdematous, and so was the scrotum, but this had only come on during the last few days. The girth of the umbilicus was thirty-four inches, the urine was healthy, the temperature in the evening was just over 100. There were no signs of tuberculosis of either lung, but my colleague, Dr. Simon, who examined the chest for me at a time when I thought of draining the abdomen, found friction over a painful area in the right chest. This determined me for the time being against operating, and the subsequent improvement dissuaded me from it altogether. The patient was kept at rest in bed with the abdomen bandaged, cod liver oil was administered and as liberal a diet allowed as he could take. Under this treatment the swelling of the legs and scrotum and the distension of the abdomen speedily diminished, but the temperature fluctuated considerably and in the evening ran up occasionally to 102°. This elevation of temperature continued until the middle of October and then subsided to normal, and the circumference of the abdomen at the umbilicus had then shrunk from 34 to 29 inches. With the lessening of the fluid and the normal temperature it seemed reasonable to allow the patient to get up, but this liberty was soon followed by a return of the ascites. The patient was therefore again confined to bed, and return to the recumbent position was again accompanied by diminution of the fluid in the abdomen. The temperature was now practically normal; the fluid, once it had disappeared again, did not re-accumulate, and the girth of the umbilicus remained about 29 inches—that is, the patient was 5 inches less round the abdomen in December than he was on admission in September. He had, with the loss of his ascites, lost weight, so it was difficult to say whether his general nutrition had improved or not.

On December 16th patient was transferred to the Jaffray Hospital. At this time, though there was no free fluid to be detected, the abdomen was rather rigid, fuller, and less resonant than in health, and the surface markings were obscured. A recurrence of evening temperature now took place, reaching from 100 to 101. There was some night-sweating, with loss of 3 lbs. weight in six weeks; and on July 15th a distinct mass of thickening could be palpated in the right iliac fossa, and another in the umbilical region. The patient was not now confined to bed, but was treated by mercurial inunction to the abdomen.

In the next five or six weeks the condition remained practically unchanged, and then considerable improvement set in. The evening temperature was nearly normal, weight was gained, and the lumps in the abdomen diminished.

The improvement steadily went on, and on June 13th, when patient left the Jaffray, his temperature was normal, the masses in the abdomen had disappeared, his weight had gone up from 6 st. 10 lbs. to 8 st., and he appeared to be well. His present condition is quite satisfactory.

CASE OF SUPPURATION IN THE CEREBRAL VENTRICLES FOLLOWING CHRONIC MIDDLE-EAR DISEASE.

UNDER THE CARE OF MR. BARLING.

REPORTED BY J. A. BERLYN, M.R.C.S.

A. T., female, æt. 3½, was admitted to the General Hospital, under the care of Dr. Rickards, on September 20th, 1893.

History.—Two days before admission the child complained of frontal headache and of feeling ill. On the following day the headache was worse, and in the afternoon the child vomited several times. On the morning of the day of admission she complained of pain in the right eye, and coughed frequently, crying with pain in the abdomen when coughing. She had had no definite convulsions.

Past History.—There had been a discharge from the right ear since the child was six months old, and this began before she had measles or whooping-cough. Fourteen days before admission she had fallen on some bricks and hurt the right side of her head.

State on Admission.—The head was much retracted and the face flushed. No paralysis and no strabismus. There was a purulent discharge from the right ear, the breath-sounds over both lungs were harsh, and faint bronchial breathing was audible over the right upper lobe. Temperature 101·6°, pulse 90, respiration 36.

For four days after admission the temperature ranged between 97 and 99°, the respirations averaged 22, and the pulse 98.

September 26th. The eyes were examined by Mr. Wood White, but the discs shewed no neuritis. In the evening the temperature was 102·2°, and remained between 101 and 102° until the morning of the 30th, when it fell to 97·2. During this period there was a purulent discharge from the rectum and vagina.

During the next week the child was very "irritable," and cried out with pain in the head. She vomited once or twice every day. The retraction of the head remained as before, and there was doubtful tenderness over the right mastoid. The temperature, with one exception, remained between 98 and 99°, the discharge from the right ear continuing.

October 8th. The tenderness over the right mastoid being more marked, the child was transferred to the care of Mr. Barling.

October 9th. It was decided to explore the mastoid antrum. The bone was chiselled away, but no antral cavity existed. The right lateral sinus was freely exposed and found healthy, as was also the dura below it over the posterior fossa. The wound was therefore closed.

October 11th. The child vomited twice during the night. Temperature since operation normal.

October 13th. An anæsthetic was given and the wound dressed; it was found to be aseptic.

October 14th. There was a discharge of pus from the left ear.

October 15th. The child had become drowsy, and took food with difficulty. Retraction of head had been present since the operation

October 16th. At 5 a.m. the respiration assumed the Cheyne-Stokes rhythm, and the child sank rapidly, dying at 10-20 a.m.

Autopsy.—The pyal surface of the brain was much injected. On the removal of the brain, a considerable amount of pus oozed from near the tips of both temporo-sphenoidal lobes; and on section, a large collection of pus was found in both lateral ventricles. All three horns were much dilated, and their interiors coated with a somewhat granular pyogenic layer. There was a considerable extension of pus through the iter into the fourth ventricle, and from this to the cerebellum, the fourth ventricle being dilated. The right lateral sinus contained at the bend a small partly adherent thrombus. Its wall, at the seat of operation, was intact, and its endothelial surface was slightly roughened. The longitudinal sinus contained only secondary clot. The dura and bone over both tympani were healthy. There was some plastic meningitis on the anterior surface of the pons and medulla which was not very extensive. The cervical vertebræ were healthy. Except that the lungs shewed some slight pneumonic consolidation and the abdominal organs some cloudy swelling, the viscera were healthy.

REPORTS OF SOCIETIES.

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BRITISH MEDICAL ASSOCIATION.
BIRMINGHAM AND MIDLAND COUNTIES BRANCH.

The first ordinary meeting of the Session 1893–4 was held on Thursday, October 12th, 1893, the President, Dr. **Rickards**, in the chair. There were sixty-two members present.

The following were elected members of the Branch:—Annie E. Clark, M.D., E. J. Whitehouse, M.R.C.S., J. A. Berlyn, M.R.C.S., and J. R. Hickinbotham, M.R.C.S.

The President then declared open the adjourned discussion (from the annual meeting of the Branch) of the following recommendation of the Council and of Dr. Douglas' amendment to it.

Recommendation.

> "That this Council considers the payment of railway fares (travelling expenses) of the members of the Parliamentary Bills Committee of the Association would be creating a very undesirable precedent, and is unnecessary."

Amendment.

> "That this meeting of the Birmingham and Midland Branch recommends that each representative member of the Parliamentary Bills Committee, and ten other members chosen annually by the Council of the Association, when attending either a committee meeting or a sub-committee meeting of the Parliamentary Bills Committee, be paid first-class return travelling expenses (railway and boat fares) out of the funds of the Association, as is already done when members of the Council attend meetings of that body."

An apology was received from Dr. Douglas, who was unable to attend the meeting.

After a brief discussion, it was moved and seconded that the discussion be adjourned *sine die.*

Subsequently Dr. Simon moved "the previous question." This was seconded, and, being put to the meeting, 19 voted for it and 6 against it, and it was therefore carried.

Mr. Jordan Lloyd moved a resolution, of which due notice had been given, "That the hour of meeting be changed from 4 to 3.30 o'clock."

Two amendments were proposed—1, "That the opinion of the Branch be taken by circular as to the most convenient time for meeting;" 2, That the matter be remitted to the Council."

Mr. Lloyd's resolution was eventually carried, but only after a vote of the meeting had prolonged the time for matters of business.

Dr. Wade then read his paper on "An Abortive Treatment of Sick Headache in certain cases."

In the discussion which followed, after some remarks by the President,

Dr. Foxwell congratulated the Society on having secured so excellent a paper from Dr. Wade. He especially admired the clearness and ingenuity with which Dr. Wade had brought forward his cumulative proofs of the rôle played by the fifth nerve in this complaint. But whilst freely admitting the importance of this nerve in megrim he fully agreed with the reader of the paper in acknowledging that some of the most serious cases could not come under this category, and that as yet there was no one theory before us which could explain all the phenomena. In his experience megrim which began purely as a neuralgia of the fifth was much more amenable to remedies whose action was of short duration than those attacks which commenced with general malaise, nausea, and depression, and culminated, in a day or more, in extreme weakness, vomiting, absolute anorexia and vomiting, which continued for, it may be, several days. The former class included those cases which were often the direct result of some action of the patient, as undue eye or ear strain. In these, two or three doses of antipyrin or antifebrin, glonoin or cocaine often successfully aborted the attack. But in the other class, though these drugs might for a time —sufficient, for instance, for the purposes of a consultation or lecture ward off the attack—yet it was only for a time, and prolonged rest with very little food alone effected a cure. It almost seemed as if cases of this class were really cases of splanchine epilepsy—subjective causes constantly acting culminating in periodic explosions. Still, though medicine could not abort the attack, yet the persistent exercise of our art could do much to modify the causes which produced it. Many sufferers being completely cured or greatly benefited by regulation of their diet and mode of life accompanied by small doses of some mercurial—preferably the mercury pill of the pharmacopœia, followed the next morning by a saline purge. and the action of the two aided by copious draughts of water taken between meals.

Dr. Edgar Underhill said that he used formerly to suffer much from headache, especially if travelling, even short distances, or with any unusual pressure of work. He was now fortunately troubled but seldom, because, whenever one threatened, he took ten grains of antipyrin. At the same time he was careful to drink a large quantity of water to wash away deleterious products excreted by the kidneys.

Dr Thursfield believed that high tension and retention of urates or uric acid was the common cause of these headaches. Suffering much from them himself, he found that he combatted his troubles most successfully by starving for several hours, drinking hot water, and taking phenacetin gr. x., caffein gr. iii., in capsule, about middle-day. He did not lie up unless absolutely obliged, and then endeavoured to get sleep. Exercise in the fresh air he regarded as indispensable to prevent these attacks.

Mr Priestley Smith agreed with Dr. Wade's advice that errors of refraction and defects of motor equilibrium in the eyes should be looked for and, when found, carefully corrected, in cases of migraine, for they were among the many exciting causes of the disorder; but he thought that most English oculists would agree that the importance of these conditions as causes of migraine had been exaggerated. The suffering induced by astigmatism, hypermetropia, was proportionate to the nervous instability of the patient, not to the actual fault in the eyes. Nervous exhaustion from various causes seemed to induce the attacks, and the patients were often over sensitive in various ways. He asked whether it was the experience of others that persons habitually over-sensitive to light on first waking in the morning were often sufferers from migraine. In his experience a useful point in treatment was a daily rest, with sleep if possible, but in any case with absolute freedom from disturbance, after the middle-day meal. Horse exercise, when possible, was a better remedy than any drug.

MIDLAND MEDICAL SOCIETY.

A meeting of the Midland Medical Society was held at the Medical Institute on Wednesday, October 18th, the President, Mr. EVANS, being in the chair.

Mr. Eales shewed a man (J. K.), aged 21, who had suffered from a severe form of episcleritis in each eye of eleven months' duration. Large nodules were seen on the sclera, and the margin of the cornea had been infiltrated, but the condition had recently much improved. The history and appearances pointed to struma as the cause of the disease.

Mr. Jordan Lloyd shewed a specimen of cancer affecting the whole cervix uteri, in which vaginal hysterectomy had been successfully performed. The patient was 32 years old, and the growth was of several months' duration. The operation was performed some months ago, and the patient is quite well.

Mr. Lucas shewed a periosteal sarcoma of the femur, removed by amputation at the hip joint. The patient, a girl aged 12, had noticed a swelling for five months. Amputation was performed by Furneaux Jordan's method, after the application of an elastic tourniquet to control the hæmorrhage. There was very little loss of blood, or shock, and the wound was soundly healed in 23 days The growth proved to be a round and spindle-celled sarcoma.

Dr. Kauffmann shewed a specimen of bronchiectasis of both lungs, affecting the lower lobes more than the upper, and the left more than the right. The symptoms were unusual, inasmuch as the patient, a youth of 20, presented the appearance of a person with advanced phthisis and spat up a large quantity of sputum—thick, homogeneous, and possessed of the putrid smell commonly found in cases of perforating empyema. The dilated bronchi shewed very irregular bulging of their walls, the lungs presented but little interstitial growth, and the bronchiectasis appeared to be due to a prolonged inflammation of the bronchial racemosa rather than to a dragging of interstitial new growth.

Mr. Barling read his paper on Cases of Peritonitis treated by Drainage. He shewed at the meeting six of the patients on whom he had so operated.

REVIEWS.

THE DISEASES OF CHILDHOOD (MEDICAL).*

Books on diseases of children are by no means wanting, and possibly there is somewhat of a superabundance of writing upon this department of practice, which hardly deserves to be regarded as a specialty; but Dr. Donkin has compressed his matter into moderate space, and has devoted his attention mainly to those points of clinical difference which are worthy of emphasis. At the same time, there are whole chapters which might well have been omitted; while a more detailed description of what is purely infantile would have increased the value of the book.

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* The Diseases of Childhood (Medical). By H. Bryan Donkin, M.D. Oxon., F.R.C.P. London : Charles Griffin and Co. Limited. 1893.

For example, "peg-top and notched teeth, and the interstitial keratilitis described by Hutchinson, are frequently seen," appears to be all the reference made to these very interesting and important symptoms of hereditary syphilis, no further information being afforded as to their nature, time of incidence, or value in diagnosis.

Under Purpura we notice, in order to confirm the author's opinion, that there are cases of purpura hæmorrhagica difficult, if not impossible, to differentiate from hæmophilia.

The treatment of tetany in infants by Calabar bean seems to us as absurd as the treatment of itch by the actual cautery, as all that is needed is the regulation of the diet and gastro-intestinal functions.

Dr. Donkin considers that chorea is not definitely caused by rheumatism, and that the latter is "strictly subordinate to certain nervous conditions essential to the production of chorea." We are quite in accord with the author in his recommendation of perfect rest for these cases, and would even express ourselves more explicitly—that is, we should say that rest in bed is the only treatment that is of any value.

In the treatment of asthma two valuable remedies are omitted—namely, emetics and morphia. We are glad to notice the author's deprecation of many poultices in broncho-pneumonia. "In severe and established cases I never allow poultices at all, nor any wrap to the chest except a thin layer of cotton wool or wadding, for I am well assured of their uselessness." Again: "For medicine, alcoholic stimulants, in small doses, are necessary, I think, where there is great prostration and embarrassed heart." "Carbonate of ammonia I give in nearly all cases." It would be more satisfactory to a beginner if Dr. Donkin would state the dose he employs, and enter a little more into detail as to treatment which, though sound in principle, requires proper application.

THE RECRUDESCENCE OF LEPROSY AND ITS CAUSATION.*

THIS book has been written as a popular treatise with the object of discrediting the practice of vaccination in this country, by publishing in a collected form all facts, opinions, and extracts from medical writings which can serve to light up in all its hideousness the terrible truth that leprosy has been communicated with the vaccine virus. We use the words "terrible truth" because we have long accepted the proofs adduced as conclusive on this head, and we think it would have been better had there been less desire to obscure this fact. We are in no position to estimate the amount of mischief which has been so caused, and we heartily hope that Dr. Beaven Rake is right in supposing it to be very small; but there is a very suspicious relation in time between the introduction of compulsory vaccination into the Sandwich Islands and the great increase of leprosy there. When we recall the fact that this "arm to arm" vaccination was for the most part not performed by regularly qualified medical men, we are disposed to agree with the views attributed to Mr. H. G. Crabbe, a member of the Upper House of Legislature in Honolulu, who stated that he was a believer in vaccination as a prophylactic agent against small-pox, but considered that as at present administered it was a most cruel and mischievous infliction upon a confiding population. If any of our readers are doubtful of the communicability of leprosy in this way, we would ask them to read the paper published by Professor Gairdner, of Glasgow, in the *British Medical Journal* for June 11th, 1887, in which he gives the histories of two Scottish lads, belonging to distinct families, but born in a well-known endemic seat of leprosy (? Trinidad), who became lepers as the result of vaccination with lymph taken from the arm of a coloured infant in whom leprosy declared itself subsequent to the vaccination. We believe the facts known are sufficient to make it not only inexpedient, but positively wrong to practise arm to arm vaccination in any place where leprosy is endemic, and that if no other plan is possible, it is better to run the risk of small-pox and give up vaccination in those localities. The anti-vaccinationists are welcome to make the most of this admission; it is the logical conclusion from the facts adduced, while the recommendation of the author of this book—namely, the universal discontinuance of vaccination—is totally unwarranted by the argument, and plainly shews that his labours have been animated not by a desire to determine the best course, but to find fuel for a faction fire, now burning very low, and likely to be entirely extinguished by the report of the Royal Commission.

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* The Recrudescence of Leprosy and its Causation By William Tebb. With an Appendix. London: Swan, Sonnenschein, and Co. 1893.

A GUIDE TO THE EXAMINATION OF THE URINE.*

Dr. Wickham Legg's little book was thought a sufficient guide for the clinical examination of the urine twenty years ago, but has needed considerable expansion to bring it even approximately up to the standard of modern requirements. The testing for albumen is well described, though the objections to some recent methods are not given. In the same way, the fallacies of the tests for sugar are omitted. It is quite a mistake to take trouble to avoid mixing the nitric acid and urine in testing for bile in a test-tube, and the test is much better performed if the urine is diluted with one or two volumes of water. We are glad, however, to see that the "porcelain plate" is not recommended. Hay's test for bile acids is given, although we have never found it to succeed with urine. The method of testing for blood with guaiacum and ozonic ether is described wrongly; at least, it is far more delicate if the tincture of guaiacum and ozonic ether are mixed first in the test-tube, and then a few drops of the lowest stratum of urine added with a pipette.

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* A Guide to the Examination of the Urine. By J. Wickham Legg. Seventh edition, edited and revised by H. Lewis Jones, M.A., M.D. London: H. K. Lewis. 1893.

The account of the urinary pigments is confused, and not in accordance with modern authorities; urochrome is no longer recognised, and urobilin should be given as the normal urinary pigment. In many other respects this section upon a difficult subject is wanting and inadequate.

Under Urea, not one of the common methods for its quantitative estimation is given. Under Phosphates, it is not stated that they separate on heating the urine. We find the estimation of urea in an appendix. The polariscope is recommended for the estimation of sugar, although its utter untrustworthiness for this purpose must now be well known.

We should be sorry to recommend this book to students in the face of the fact that there are so many other better manuals available.

THE MINERAL WATERS OF HARROGATE.*

Every fresh medical arrival at a health resort probably feels it is his duty to publish more or less of a work setting forth its manifold advantages, and claiming for it as much as he decently can as a means of restoration to health.

The present slim little volume is of this kind. It begins by praising the climate of Harrogate, its dry, fresh, invigorating atmosphere, its fortunate position as an oasis of pure air in the middle of a smoke-laden colliery district, which peculiarity enables the author to describe its position as unique; the beauty of its immediate neighbourhood, and the historical and romantic associations of places to be visited in short excursions; its Stray and its golf links.

There are more than 80 springs at Harrogate, supplying waters which may be classified as—1, sulphuretted waters; 2, chalybeate waters. The former contain sulphuretted hydro-

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[*] The Mineral Waters of Harrogate. By John Liddell, M.D. Young J. Pentland. 1893.

gen, sodium chloride and other chlorides, but no sulphates; the chalybeates contain ferrous carbonate and sodium chloride. The former are useful in chronic catarrhal affections of mucous membranes, gout, and eczema; while the latter are not only valuable as tonics in convalescents of the former class, but are of great efficacy in the treatment of anæmia, struma, etc.

Harrogate is a really valuable summer health resort, and deserves to be borne in mind for the above classes of cases.

ARCACHON, IN THE DEPARTMENT OF THE GIRARDE, FRANCE.*

Arcachon has been called the Bournemouth of France, and is about an hour and a quarter from Bordeaux. It is admirably suited as a winter climate for bronchitic patients and persons with what are called weak chests, by which we understand people who easily take cold in our damp sunless winters It is thoroughly well sheltered from the wind, there is scarcely any frost, and the rainfall is very moderate. On the other hand, it is not suitable for people of a torpid or lymphatic temperament who demand more bracing air. It is often beneficial to asthmatics, but their peculiarities are so great that nothing certain can be predicted of them. In the case of well-to do persons it is a winter resort which should not be forgotten, although the class of persons for which it is best fitted generally do very well at any place where there is an equable mild climate.

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* Arcachon, in the Department of the Girarde, France; its advantages as a health resort. By the Rev. Samuel Radcliff, British Chaplain. Second edition, with Medical Appendix by Dr. Festal. London: Thomas Laurie. 1893.

MASON COLLEGE.
THE QUEEN'S FACULTY OF MEDICINE.

THE Medical Session at Mason College commenced on October 2nd, and on the 9th, Dr R. C. Jebb, Regius Professor of Greek at Cambridge and M.P. for the University, distributed the prizes, a list of which appeared in our last issue. The President of the College, Mr. Oliver Pemberton, was in the chair, and there was a large and influential attendance.

The President, having expressed regret at the unavoidable absence of Mr. Bunce, said that last year Alderman Johnson, in discharging the duties of President of the Council, referred to the great event of that year as being the transference to that College of the Queen's Faculty of Medicine. That day marked the commencement of the second year of their union, and found the great faculties of arts, science, and medicine complete in all requirements. It was fitting that so great a master of anatomy as Sir George Humphry—one who might truly be described as the founder of the Cambridge school of medicine of the present day—should have inaugurated by an address, replete with encouraging counsel, the most recent effort of the authorities towards the realisation of the object contemplated by the founder—"That instruction in all branches of science, including medicine and surgery, in language and literature, and in all subjects required for degrees in arts or science, should be provided." Cambridge, the great mother of "Progress through knowledge," helped them again that day, and conferred honour on their city and College in the presence of Professor Jebb. In truth, they had reasons for congratulation. Last year they met in another building; but now they were under their own roof. The number of their students had increased from 492 to 622, and the passes at the University of London had grown in frequency and been accompanied by many honours. Their arrangements enabled them to hold in the College the various examinations in arts and sciences of the University of London and of the professional preliminary of the College of Preceptors. As to the teaching staff, he hesitated in their presence to say what his colleagues on the Council, with himself, thought of the devotion of their professors and lecturers to their responsible duties. He would, however, say that the members of the teaching staff possessed the entire confidence of the Council, and he knew that they had equally the confidence as well as the respect and admiration of the students. They welcomed as recent additions to their number Dr. Thomas Savage and Mr. Gilbert Barling. But there was mingled with these the inevitable regret. Alderman Avery, in the face of advancing years, had felt himself compelled to resign his position as a trustee and as a member of the Council—appointments he had held from the beginning of the College. It was little to say of Mr. Avery that there were few names as highly honoured in Birmingham, and that if a life of long devotion to the city's best interests could claim honour and affection, then truly he had his reward in abundance. The vacancy had been filled up by the election of the Mayor, who had given ample proof of his courtesy and administrative ability. As to their wants, one was a very common want—that of money. They wanted a larger annual income, and they wanted it at once; and those who desired to benefit succeeding generations should have little anxiety as to the application of funds in aid of an institution like that. Lastly, they wanted to be a Midland University. That which had been given to Manchester and Durham—which was developing for Wales—could not much longer be denied to Birmingham. They could rely on this : Birmingham would work and strive for it, and, deserving it, would assuredly not have to wait long before it came.

Dr. Rickards (President of the Clinical Board) and Professor Windle (Dean of the Medical Faculty) introduced to Professor Jebb the winners of the prizes and honours in the Queen's College Faculty of Medicine. Dr. Rickards explained that some of the prizes in that faculty were in the form of resident hospital appointments, of which he would read the list. It must also be a matter for great gratification to all interested in the Medical School that at the present time all the higher resident appointments at the two hospitals in Birmingham—those appointments which required to be filled by thoroughly qualified men—were filled by students from their own school, and filled in such a way as to bring credit to the school.

Professor Jebb then delivered an address, since published, on classical study and education in England.

TO THE EDITOR, "BIRMINGHAM MEDICAL REVIEW."

Sir,—I wish to call the attention of the profession to a class of advertising quacks whose advertisements appear chiefly in the cheap weekly papers, and whose practice cannot help being hurtful to the public weal. The majority of these advertisements emanate from females. Mystic titles are assumed, which lead the unwary to believe that they represent qualifications. Announcements are made that they can be seen for consultative purposes; and their notices are generally headed—"To females, married and unmarried." Their remedies are said to remove all irregularities, however long-standing and from whatever cause arising.

It has been discovered that their fees are by no means low, ranging from 5s. 6d. to 22s., the latter sum being the price of their strongest compound. Judging from their private circulars, they must carry on an extensive business. Some of them publish monthly accounts of the cures they have effected; and their answers to applicants are, as a rule, type-written.

The point I wish particularly to bring before the profession, and through them to the public at large, is this: Whether such a dangerous class of quacks ought not to be prevented from following their illegal calling, and what means can be adopted to suppress them.

Unfortunately, the Indecent Advertisements Act of 1889 does not apply to the insertion of objectionable advertisements in newspapers, and until that Act is amended nothing can be done in that way.

After the decision of Mr. Justice Wright in the case of Alabone *v.* Morton, there is no doubt that prosecutions could be successfully instituted under the Apothecaries' Act; but who is to commence such proceedings? If we could only prove to the Home Office authorities that these female quacks are in the habit of administering medicines to procure abortion, I think there would be little difficulty in getting the Home Secretary to order prosecutions. At the same time, the profession might, as a body, make strong representations to the proprietors of the newspapers on the subject, pointing out the dangerous nature of the advertisements.

It will be a source of satisfaction to many to know that the Medical Defence Union are making preparations for the amendment of the Indecent Advertisements Act.

Faithfully yours,

Cardiff, October 14th, 1893. T. G. H.

PUBLISHERS' DEPARTMENT.

New Inventions, Drugs, etc.

CHIMATTO ENAMELLED GAS STOVES AND COOKING BURNERS.—Messrs. Fletcher, Russell and Co. Ld., of Warrington, have invented a new process by which the surface of cast iron cooking stoves is covered with a thin film of enamel which entirely prevents rust, and is capable of unlimited application for decorative effect. It is said to be possible to obtain any number of colours of any shade, dead or bright, as well as gold and silver, dull or polished; and these coloured surfaces are claimed to be unchangeable by exposure to air or to any heat. The invention is one which unquestionably promises to be of great value in improving the artistic appearance and the cleanliness of gas cooking apparatus. We can imagine nothing would look nicer than a gas cooking stove enamelled white, and if this would be neither too costly at first nor too soon spoiled in appearance, we should expect it to become very popular.

MATCH BOX AND THROAT LAMP.—We have received a specimen of a small combined Match Box and Throat Lamp designed by H. W. Denton Cardew, M.R.C.S. This little instrument seems very convenient for illuminating the throat, nose, ear, or vagina. The light is well-reflected through an ordinary speculum. The metal will retain its white colour, and is made of a special amalgam which is easily burnished by rubbing with a wash-leather or handkerchief. The little candlestick will hold a wax match firmly, while the physician can easily manipulate and hold it in any desired position.

WOOD'S SPECTACLETTE.—We desire to draw attention to the new fixed centre eyeglass which has been patented by Mr. John J. Wood under the name of "Spectaclette." It is a great improvement on any other form of *pince-nez* and has more than all the advantages and none of the disadvantages of spectacles themselves. We strongly advise our readers to try it.

JOHN WRIGHT & CO.'S NEW AND IMPROVED VISITING LIST.—We have much pleasure in drawing the attention of the profession to Messrs. John Wright and Co.'s New and Improved Visiting List. It is small, very convenient for the pocket, and yet affords space for a very large number of patients, while by an ingenious use of short or half leaves, one writing up of the names serves for a month instead of a week. The paper and type are exceedingly good and the binding is very strong, neat, and good. We strongly recommend this visiting list to our readers.

New Books, etc., Received.

Anæsthetics and their Administration ; a Manual for Medical and Dental Practitioners and Students. By FREDERIC HEWITT, M.A., M.D. Cantab., Anæsthetist and Instructor in Anæsthetics at the London Hospital, etc. London : Charles Griffin and Co.

Introduction to the Catalogue of the Collection of Calculi of the Bladder, now at the Royal College of Surgeons. By Sir HENRY THOMPSON, F.R.C.S. London : J. & A. Churchill. 1893.

The Clinical use of Prisms and the Decentering of Lenses. By ERNEST E. MADDOX, M.A. Second Edition, revised and enlarged. Bristol: John Wright and Co.

Wright's Improved Physicians', Surgeons', and Consultants' Visiting List, compiled by ROBERT SIMPSON, L.R.C.P., L.R.C.S. Bristol: John Wright and Co.

Manual of the Diseases peculiar to Women. By JAMES OLIVER, M.D. Edin., M.R.C.P. Lond. London: J. and A. Churchill.

Dissections Illustrated; a Graphic Handbook for Students of Human Anatomy. By C. GORDON BRODIE, F.R.C.S., Senior Demonstrator of Anatomy at Middlesex Hospital Medical School. With plates drawn and lithographed by Percy Highley. In four parts. Part ii., The Lower Limb, with twenty coloured plates and six diagrams. London and New York: Whitaker and Co.

Lectures on the Surgical Disorders of the Urinary Organs. By REGINALD HARRISON, F.R.C.S., Surgeon to St. Peter's Hospital, London. Fourth edition, re-written. London: J. and A. Churchill. 1893.

Syphilis; its Treatment by Intra-muscular Injections of Soluble Mercurial Salts. By EDWARD COTTERELL, F.R.C.S., Surgeon to out-patients, London Lock Hospital. London: John Ball and Sons.

The Student's Handbook of Gynæcology, specially designed to assist those commencing the study of Diseases of Women. Illustrated with forty-nine engravings. Edinburgh: E. and S. Livingstone. 1893.

Sciatic Neuritis; its Pathology and Treatment. By ROBERT SIMPSON, L.R.C.P., L.R.C.S. Bristol: John Wright and Co.

Handbook of Public Health and Demography. By EDWD. F. WILLOUGHBY, M.D. Lond. London: Macmillan and Co. 1893.

Tumours, Innocent and Malignant; their Clinical Features and Appropriate Treatment. By J. BLAND SUTTON, Assistant Surgeon to the Middlesex Hospital, London. With 250 engravings and nine plates. London: Cassell and Co. 1893.

Pyogenic Infective Diseases of the Brain and Spinal Cord, Meningitis, Abscess of Brain, Infective Sinus Thrombosis. By WILLIAM MACEWEN, M.D. Glasgow: James Maclehose and Son. 1893.

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THE

BIRMINGHAM MEDICAL REVIEW.

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ORIGINAL COMMUNICATIONS.

BLASTOMA.

(CANCEROUS AND QUASI-CANCEROUS GROWTHS OF CONGENITAL ORIGIN.)

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No one who attempts a comprehensive classification of the various diseases laying claim to the title of "malignant," or "cancerous," can fail to be struck by the appearance of certain obscure and strangely-constituted tumours which refuse to fall into any of the recognised groups. They materially differ from one another in histological composition and in clinical career: while the most conspicuous examples prove assuredly fatal, with metastatic deposits, the minor but occasionally display these cancer-features; all, however, agree in being the offspring of fœtal structures obsolete in extra-uterine life. The cases are numerically small, and have hitherto served mainly as pathological curiosities, designated by sundry polysyllabic names; but in no way linked together. I venture to think that a clearer perception of their true affinities will cast much light upon a hitherto obscure corner of pathology, and in order to facilitate discussion, have placed them in a single group under the title of Blastoma (βλαστος, germ).

Cohnheim ascribed *all* malignant new-growths to the persistence of embryonic residua which should normally have become obliterated. His theory entirely fails to obtain any evidence in support, among the average cancer-developments of the adult; on the other hand, it very accurately accounts for the *raison d'être* and clinical manifestations of the tumour-formations now in question—*i.e.*, whenever the latter display the symptoms recognised as "malignant," which is commonly, but not invariably, the case. The most striking, though by no means the most common, exemplar of the blastoma in its most malignant form is that new-growth of the infantile kidney long recognised as rhabdo-myoma. The disease may begin *in utero*; it often synchronously attacks both organs. Among eleven cases cited by Dr. Bertram Windle (*Journal of Anatomy and Physiology*, xviii., 166), the most advanced age at which it was first recognisable was 3¼ years. *The development appears wholly spontaneous.* Huge masses, containing striped muscle blended with ordinary sarcoma-tissue, grow rapidly; and prove fatal with metastases in lungs, liver, heart, peritoneum, etc. There are a large number of cases, exactly similar in clinical history, only not ranked as rhabdo-myoma, because striated muscle-fibres are absent.

These rare formations exemplify a general tendency pervading all the organs derived from the Wolffian bodies, Müllerian ducts, and germinal epithelium. Of such the most important are the kidneys, uterine appendages, testes with their gubernacula, vesiculæ seminales, epididymes, prostate, vasa deferentia, and cortical part of the adrenals. The organ of Giraldés, vas aberrans of Haller, hydatids of Morgagni, parovarium, are less conspicuous obsolete relics of the embryonic structures alluded to.

In association with every one of the viscera above named do we find a marked proclivity to the development in childhood or adolescence, of tumours, clinically bearing an exact correspondence to the cancerous lesions of the adult, giving rise to distal metastases, progressively advancing, and terminating surely in death; yet conspicuously differing from the sarcoma or carcinoma of the "cancer-age" in the absence of any discernible exciting cause.

Congenital tumours of the ovary, long familiarly known as "Dermoids," are sufficiently common in their more conspicuous forms. According, however, to Mr. Greig Smith (*Abdominal Surgery*, p. 14), they are much more prevalent than has been hitherto supposed, about one in ten of so-called "Ovarian Cysts" being wholly or partially dermoid. Several striking cases which illustrate the cancerous character of these new-growths are cited by Mr. Bland Sutton (*Surgical Diseases of the Ovaries*). A woman of 28 had a huge dermoid cyst, of ten years' apparent duration. It contained hair and teeth. To the main cyst smaller were attached by pedicles; others lay perfectly loose. The largest of the latter was as big as a hen's egg. It lay among adhesions of the small intestines, which completely parted it from the parent cyst. There was another (fixed) in the great omentum; two near the right broad ligament; many small ones adhered to the mesentery or pelvic peritoneum. In Mr. Jessop's case, quoted by Sutton, there were secondary metastases in the liver, right adrenal, and the mesenteric lymph-glands. In Kolaczek's (*Virchow's Archiv*, Bd. lxxv., s. 399), the peritoneum was dotted over by numerous small yellow knots, many of which contained fine hairs. The primary growth was an ordinary ovarian dermoid in a woman of 40. In Fraenkel's (*Wien. Med. Woch.*, 1883, p. 865) a woman, aged 37, fell and ruptured a dermoid, noticed two years. Auto-inoculation of its cell-contents to the peritoneal surface followed, with the result of very numerous small pedunculated cysts growing from that membrane; larger ditto from the liver, diaphragm, and meso-colon; and hairs sprouting from the omentum. See also cases by Grawitz (*Virchow's Archiv*, Bd. c.), Matthews Duncan (*Obst. Trans.*, xxiv.), Moore (*Path. Trans.*, xviii.), and Hulke (*Path. Trans.*, xxiv.). On the proneness to recurrence of ovarian dermoids after operative removal, see case by Knowsley Thornton in the *Med. Times and Gazette*, ii., 235;

Alban Doran (Diseases of the Ovaries, p. 89); Bland Sutton *(Op. cit.)*.*

The composition of these malignant dermoids (which pass through a variable period of latency, often not displaying cancerous phenomena until puberty, or even later) is peculiarly complex and puzzling, insomuch that Mr. Bland Sutton has found it necessary to coin for them a special term "Oophoroma." A peculiarly interesting feature is a marked variation in their structure at different ages. Cell-elements with little organisation or regular arrangement prevail in the öophoromata of fœtuses or very young children; towards puberty a higher organisation is found, the cells being grouped in alveoli, and various formed tissues being present; later on are large cysts with the usual heterogeneous contents.

Before passing to other derivatives of the Wolffian body, the kidney must be again referred to. Although, as above stated, the presence of striped muscle has conferred upon a rare form of renal tumour a special title, numerous cases occur in which that feature is absent, yet which must necessarily be referred to the operation of the same pathological principle. The elaborate tables published by Dr. Bertram Windle (*Journal of Anatomy and Physiology*, xviii., 166) are of great value in proving the congenital origin of many so-called "sarcomata" or "cystic sarcomata" of the kidney; as also in demonstrating that admixture of heterogeneous tissues which is the most distinctive character of a Blastoma. He gives 61 cases in all, including the Rhabdo-myomata. Of 12 "mainly round-celled," 5 appeared in *both* organs, the fact almost certainly indicating a fœtal source; 7 appeared in children under the age of six. Of 8

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* It may in this connection be pointed out that the familiar "ovarian cyst" of later life, in which there is no manifest indication of an embryonic source, is often a cancerous growth; with its cell-elements cast into the shade by the exuberant cyst-formation. Thus of 600 ovariotomies in Schroeder's klinik, only 19·5 per cent. of the complete operations remained free from disease for more than a year; 100 of these shewed obvious signs of malignancy on an exploratory incision. Leopold, of 110 complete ovariotomies, found cancer in 20; while six others were left unfinished on this account: = 22·4 per cent. of malignant cases.

"mainly spindle-celled," 5 were developed at the same period of life. Of 7 not microscopically examined, 1 occurred in a premature infant, the remainder under the age of nine. Of 3 "miscellaneous," 2 appeared in infants under six, and 1 attacked both organs.

It is further interesting to note that the devolution (not "involution," which is mere temporary passage into a resting stage) of the Wolffian body and its correllatives, proceeds much further in the female than in the male. Whence we may infer that boys will furnish the majority of congenital malignant lesions here arising; and this proves to be actually the case. Of Dr. Windle's Rhabdo-myoma cases, 7 were in males, 2 in females, and 2 of sex not recorded. Roberts records 24 instances of miscellaneous renal cancer in children; 15 were in boys, 9 in girls. Lebert places the proportion of males to females, with the same, as 7 to 4; Rosenstein as 22 to 13; but these authorities include cases in the adult. Malignant growths in the bladder are most prevalent before five and after fifty; the latter are due to an obvious cause, generally the irritation of residual urine; males however predominate in both categories (Hurry Fenwick, 50 cases in the *Path. Trans.*, xxxix.). The rare cancers of the adrenals found in infancy are more often seen in males than in the opposite sex.

The Thymus is a not infrequent source of malignant growths in early life, sometimes also in advanced age, the organ being seldom wholly effaced. It arises as a diverticulum from the front part of the third branchial cleft, and its two portions are composed, one of small lymphoid cells, the other of glandular epithelium. Hence the not infrequent polymorphism of the malignant mediastinal tumours here arising. Nine cases are analysed by Letulle in the *Arch. Gén. de Médecine*, December, 1890. The titles betray their puzzling complexity of structure—viz., 3 sarcomata, 1 trabecular lympho-sarcoma, 1 a round-celled sarcoma with parts of carcinoma-structure, 2 carcinomata, 2 lymphadenomata. One patient was 23; the rest, over 40.

The Parotid is a very common site of congenital tumours, quiescent usually until an advanced period of life. Groups of embryonic cells, pertaining to one or other of the branchial arches, persist and prove the *nidus* of future tumour-formation ; mesoblastic elements may be included ; relics of Meckel's cartilage account for the presence of that tissue. Bone, striped muscle, gland-acini, embryonic connective-tissue, myxoma-tissue prevail. The new-growths are reported under a very miscellaneous assortment of titles—as dermoids, cysts, cystic sarcomata, myxomata, carcinomata, adenomata, myxo-sarcomata, myxo-chondro-sarcomata, chondrefying sarcomata, etc. (See "Enchondromata of the Salivary Glands" Mr. W. H. Jacobson, *Guy's Hospital Reports*, xxvi.)

The Soft Palate is very prone to involve similar fœtal residua—dermoids, angiomata, encapsuled masses of epithelium, millet-seed bodies known as "epithelial pearls." Hence, at some period, arise malignant growths of mixed structure, and often passing as "Round-celled Sarcoma"—an ambiguous term, including a variety of totally distinct neoplasms, and the omission of which from current nomenclature would constitute a distinct gain to modern pathology. Others are recorded as simple cysts, or more commonly as "Adenomata." If surgically removed in the encapsuled stage, malignant features are of course wanting. (See a valuable paper on "Tumours of the Soft Palate," with table of 100 cases, by Mr. Stephen Paget, in the *Bart Hosp. Reports*, 1886.)

An important section of embryonic inclusion-cancers is constituted by the Retinal Gliomata of young children which do not appear later than the age of 12 years, may begin *in utero*, may synchronously attack both eyes (though infection may also extend to the opposite side *per* the optic chiasma). Of 25 cases, by Berry (Diseases of the Eye, 1891), 3 were ante-natal, 6 were discovered in the first year, 5 in the second, 3 in the third, 2 in the fourth, 1 in the fifth, seventh, and eighth years respectively.

Of persistent fœtal rudiments which more rarely prove the seat of tumour-formation may be cited the pituitary body, pineal gland, and the remains of the six obsolete embryonic canals—viz., infundibulum, neurenteric passage, post-anal gut, cranio-pharyngeal canal, thyreo-lingual duct, and vitello-intestinal duct. The latter are all diverticula of the primitive alimentary U-shaped tube, and so are practically sequestrated portions of bowel. Hence, the resultant tumours commonly reproduce, blended with other abnormal ingredients, the structures characteristic of intestine, such as Lieberkühn's follicles. That known as the "sacro-coccygeal" may be taken as the histological type of this latter section. It consists of crypts and glandular recesses lined by cubical epithelium. These contain ropy mucus, sometimes a substance resembling hyaline cartilage, and are connected by connective-tissue of embryonic character. With them are also found Lieberkühn's follicles, solitary ditto, and unstriped muscle. The so-called "accessory thyroids" are sufficiently common, resulting from uneffaced remains of the thyreo-lingual duct. With the preceding may be bracketed growths arising at the lines of epiblastic coalescence, the scrotum, orbit, branchial fissures, the middle line of the back, abdomen, thorax, neck.

In all probability, minute sequestrated portions of one or other fœtal "blast," of the primitive alimentary canal, etc., may, like the degenerate thymus or parovarium, persist throughout life without causing the least trouble. In a proportion of the cases a certain amount of growth takes place, with the resultant formation of a tumour, fatty, cystic, or calcified, and devoid of malignant attributes. In a third class, again, after years perhaps of quiescence, a new-growth is developed, with clinical features, such as steadily progressive increase, abnormal cell-proliferation, hyperæmia, and metastatic deposits in distant parts, which characterise ordinary cancerous disease. Just as it is impossible to establish any rigid and unvarying line of demarcation between the benign and the malignant neoplasms of non-congenital origin, so those whose first foundations were distinctly laid in the embryonic period of life also constitute but a single chain, whereof each separate link differs slightly from every other, and the terminals shew little outward morphological resemblance.

The subject demands at least a volume for its adequate treatment; and cannot be more than very cursorily surveyed in the compass of a single article. Various cases illustrating the different forms of lesion more or less plainly due to the persistence of congenital rudiments will be found in my recently-published work "On Cancers and the Cancer-process," p. 357 *et seq.*; where is also pointed out the more or less demonstrable affinity of many to ordinary malignant disease. The following is an abstract of the attributes or badges which should aid in the differentiation of this obscure, and as yet but imperfectly understood class of new-growths.

(*a*) Demonstrable origin from organs or structures which persist as fœtal remains throughout extra-uterine life—*e.g.*, the thymus, pineal, and pituitary bodies.

(*b*) Origin from vestigial structures which normally undergo obliteration to a greater degree than the preceding, yet always leave inconspicuous traces. Of such are the parovarium, Giraldés' organ, and other residuæ of the Wolffian bodies, etc.

(*c*) Origin from ditto which but exceptionally thus persist—ex., "dermoids" of various parts, the "coccygeal" tumour, with other derivatives from the six fœtal canals, the umbilical "cylindromata," developed from a patent urachus.

(*d*) Anomalous tumours which appear at the site of the branchial arches or other localities affected by the ordinary "dermoid," and betray an embryonic origin by the possession of normal tissues, such as cartilage, in a very abnormal situation. The familiar "mixed" tumours which affect the parotid are the best exemplar; and similar ones are less often seen in the rectum, testis, mamma, etc.

(*e*) Those malignant lesions of early child-life which not seldom have commenced *in utero*, and are bilateral—*e.g.*, rhabdo-myoma, retinal glioma, oöphoroma. No form of cancer simultaneously attacks in the adult, corresponding organs on opposite sides.

(*f*) Certain obscure growths, especially about the nerve-centres, probably own a congenital source, and may be provisionally included in the group. Among these count the "plexiform sarcoma" of Billroth, with some at least of the tumours currently described as endothelioma, psammoma, columnar epithelioma, many "cysts," "sarcomata," "angiosarcomata," etc.

(*g*) The great majority of malignant tumours in young children—if not, indeed, all—must be referred to the class Blastoma. The kidneys, bladder, ovary, and genito-urinary tract in general, furnish the most familiar illustration. Sometimes the organ attacked is, in the adult, specially exempt from cancer—ex., the adrenals, the prostate, the vesiculæ seminales.

The morbid anatomy of the blastomata varies as widely as the features of their clinical career. The most distinctive mark is a curious and perplexing *mélange* of dissimilar tissues; of carcinoma-structure with that of sarcoma; of tubules or cysts lined by cubical or cylindrical epithelium, with areas of heterogeneous cell infiltration; of glandular acini or follicles, with structures of the connective-tissue series, cartilage, fat, bone of sarcoma-tissue and gland-tissue, with muscle; and so forth. Some (*ex.* the coccygeal tumour) are little else than masses of fat in strange situations. A relatively numerous division is constituted of tissue, resembling that of the thyroid body; other lesions consist largely of tubules lined by columnar epithelium; and indistinguishable from the crypts of Lieberkühn; there is nearly always a conspicuous tendency to cyst-formation, the walls being also lined by columnar cells. Nerve-ganglia and even nerve-fibres, striped muscle, are rare elements.

The most simple type of structure is that of a cyst; not produced by duct-obstruction; but occurring in sites, and under circumstances which plainly betray a fœtal ancestry. The highest complexity is reached by the "Mixed Embryonic Tumour" of Cornil and Ranvier; probably derived from the Wolffian body; and proving fatal either in *utero*, or within a few days after birth. These huge masses contain—first, striated muscle in the process of development; secondly, embryonic cartilage; thirdly, bone in the course of development from cartilage; fourthly, cysts with lining as above; fifthly, lobules of pavement epithelium; sixthly, long tracts of tubes of cylindrical epithelium.—(*Pathol. Histology*, transl. by A. M. Hart, i. 302).

As above stated, some of the inclusion-tumours give no trouble throughout life; others, after a variable period of quiescence, display the features of malignancy; a third class, such as the renal new-growths, and the retinal gliomata, are almost *ab initio*, truly cancerous. A very noteworthy point of differentiation, however, between such as appear in infancy or early adolescence, and the malignant disease of adults; is the seeming spontaneity of the disease-manifestations in the former, compared with their mode of origin in the latter. The malignant blastoma appears as the natural outcome of some inherent force, or law of development; owning no ascertainable existing cause. *Per contra*, the non-congenital cancer of the adult is never found without the previous operation of one or other of certain recognisable antecedents.

From the example of the Parotid, with its common tumour formations of very mixed composition, "myxo-chondroma," "myxo-chondro-sarcoma," "chondro-myxoma," etc., we learn that fœtal relics may not manifest themselves as palpable tumours, still less display cancer symptoms, until middle or old age. Also that such growth may be induced by an exciting cause, usually mechanical injury. Yet the strange mixture of tissues and the presence of cartilage, the "not infrequent" recurrence, etc., stamp these more chronic lesions as of one mould with the most acute renal rhabdo-myxomata, to which attention was first directed in this paper. Between the two extremes lie neoplasms of numberless gradations in severity. The great majority attacking the kidney, ovary, bladder, or eye are restricted to the early years of life; and these, furnishing the most typical exemplars of the Blastoma, nearly always, moreover, seem to be of perfectly spontaneous development, not to be accounted for by the operation of any agency external to the body.

From the example of the kidney, ovary, parovarium, etc., we are compelled to infer that less conspicuous embryonic vestiges, such as those above mentioned in connection with the palate, genito-urinary tract, and central nervous system, also play a corresponding part in the etiology of pathologically anomalous tumour-formations, arising in other parts of the body.

Finally, it is upon the remarkable "spontaneity" of the most typical blastomata, no less than on questions of lucidity and nosology, that I conceive the peculiar importance of the class of morbid growths I have here very imperfectly attempted to trace out hinges,—to the scientific student of pathology. That domain of knowledge necessarily fails to merit the title of a "science," unless or until its principles and laws have been in some measure defined, so that we begin to comprehend the mutual relationship of what is otherwise but a confused heap of heterogeneous facts. And again, it is often the seeming exception to a rule which, in the end, is actually found to furnish the most convincing proof thereof. I conceive that the only general theory of cancer-development which at present accounts for all the phenomena of malignancy—viz., that of autositic cell-reversion—derives considerable support from the career of the very anomalous group of neoplasms on which I have ventured to confer a comprehensive generic designation.

NOTES ON THE AFTER-TREATMENT OF CASES OF ABDOMINAL SECTION.

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(Continued from page 18, vol. xxxiv.)

PERITONITIS.

In nine cases out of ten this formidable complication is due to the fouling or infection of the peritoneum during the operation; and it is therefore a preventable disease. "Cleanliness is the highest virtue in surgery;" and in abdominal work it is the great secret of success. I would far rather have my own abdomen opened by a clean surgeon of but moderate skill than by the most dexterous dirty one. Prevention is ever better than cure; and a clean careful surgeon can nearly always avoid the causes and prevent the onset of peritonitis by the adoption of suitable precautionary measures

Precautions before the operation.—

1. The sanitary surroundings should be as perfect as possible. The room should be far away from water-closets, sinks, or ill-trapped drains. It should be impossible for sewer-gas to reach the patient.

2. The water to be used during the operation should be boiled.

3. The sponges, besides being of the finest quality, should be absolutely aseptic. For twenty-four hours before they should be put to soak in 1 in 20 carbolic solution. Immediately before the operation they should be washed in plenty of boiled water to remove the carbolic acid.

4. The silk (to be used for ligatures, etc.) should be wound loosely on glass reels, boiled for one hour, and afterwards preserved in 1 in 20 carbolic solution.

5. All glass instruments—such as drainage tubes and suckers

be boiled before the operation. All steel instruments rupulously clean, particular care being bestowed on oints of forceps and the eyes of needles. They by dry heat, or boiling water, or by immersion arbolic solution.

ne pubic hair should be shaved off.

7. The surgeon should endeavour to attain immaculate purity of the skin of the patient's abdomen, and the hands and forearms of himself, his assistants, and nurses. The skin should be smeared with turpentine, well scrubbed with soap and hot water, using a hard clean nail brush, and afterwards washed in some reliable antiseptic solution (carbolic, sublimate, or iodine). An antiseptic vaginal douche should be given.

8. No one who has been contaminated by any septic or infective case should be permitted even to enter the room during the operation—still less to assist in its performance.

Precautions during and after the operation.—

1. The utmost care should be taken to prevent the escape into the peritoneal cavity of pus, cyst contents, old blood, fæces, urine, etc. Should any such material contaminate it, the abdomen should be irrigated with warm boiled water and sponged clean.

2. In cases where indicated the use of the drainage tube is a potent preventative of peritonitis.

3. Before closing the wound the surgeon must make quite sure that no sponge has been left inside—nothing would be more certain to induce a rapidly fatal peritonitis.

4. The wound should be kept clean and dry, dusted with iodoform or powdered boric acid, and covered with some aseptic or antiseptic absorbent dressing such as Gamgee tissue or sal alembroth wool.

5. The drainage tube should be emptied at frequent intervals with a sucker, and the latter must be kept scrupulously clean. Should the discharge become offensive the tube should be irrigated at intervals of a few hours with warm iodine water.

6. An early movement of the bowels should be secured, unless during the operation the intestine has been injured.

7. In order to increase the absorptive power of the peritoneum, no food or drink should be given during the first twenty-four or forty-eight hours.

8. The nurse should be instructed to be on the look-out for the first symptoms of the disease and, on their appearance, to at once commence active treatment.

The Clinical Features of Peritonitis.—As a rule, the first symptoms appear on the third day. The earlier they appear, the graver is the out-look.

1. The abdomen becomes markedly distended with flatus, and yields a tympanitic note. The individual coils of intestines can rarely be distinguished, and there are no visible vermicular movements. The abdominal wall becomes hard, tense, brawny, and moves but slightly with respiration.

2. Vomiting soon sets in, at first of unaltered bile—yellow and bitter. As the disease advances, it becomes emerald and then olive green in colour. In grave cases it is dark coffee brown, and in hopeless cases black. There is often little or no nausea, the fluid pumping up in gush after gush without any retching.

3. Constipation is absolute, not even flatus passing.

4. The pulse, slow at first, becomes rapid and soft; and the quicker the pulse, the greater the danger.

In some of the worst cases the only signs of mischief are a rapid soft pulse and an anxious face. There may be no vomiting, no tympanites, no pain; but the patient rapidly succumbs, and *post mortem*, acute general peritonitis is found. In such cases the cause of death is probably an acute septicæmia.

5. The temperature may be normal, subnormal, or febrile. The thermometer is of very little use in the diagnosis of peritonitis. A subnormal temperature, especially if there be a rapid pulse, is a bad sign.

6. The tongue is covered with a creamy white or bile-stained fur. In grave septic cases it is dry and brown.

7. The face is pinched and anxious, the features sunken, and dark rings form round the eyes. The patient is depressed; and though she has little physical pain, she feels very ill. The

mind is usually perfectly clear. Towards the end she becomes very restless.

8. The excruciating pain, the exquisite superficial tenderness of the abdomen, the drawing up of the knees, and the hard wiry pulse described by all the text-books, are clinical features seldom present in the peritonitis following abdominal sections.

The Elements of Prognosis.—

1. The following are very grave signs:—Pulse above 140, temperature very high or very low, dry brown tongue, pinched anxious face, coffee-coloured vomit, very hard tumid abdomen, entire failure of repeated purgatives, marked restlessness.

2. The case is hopeless if the vomit be black, if the pulse cannot be counted at the wrist, or the hands become cold.

3. On the other hand, we may predict recovery if the bowels move freely, the abdomen become softer, the vomit lighter, the face brighter, the tongue moister, the pulse slower.

Treatment.—This may be summed up in one sentence—*Get the bowels moved.*

1. A rapidly-acting purgative should be administered on the first sign of distension. The best drugs to give are undoubtedly calomel and salines, administered alternately. Give five grains of calomel and, in three hours' time, a Seidlitz powder or a dose of sulphate of magnesia. If there be no action of the bowels, repeat the calomel in another three hours, and follow it with a second seidlitz powder. Persevere in this way until the desired result is attained. It is remarkable how seldom even heroic doses of calomel, given in peritonitis, produce mercurialism. It is a race and a fight between us and the disease for the command of the bowels. If we can purge the patient, she will almost certainly recover.

2. Turpentine enemata are of great value. They should also be commenced on the first sign of mischief, and repeated every three or four hours. The enema consists of half an ounce of turpentine mixed with half a pint of hot soap and water. Where this fails, an ounce of castor oil should be added to it. The enema asafœtidæ (B.P.) is often useful in aiding the passage of

accumulated flatus. In obstinate cases we can sometimes start the action of the bowels by the following enema:—Glycerine, 1½ ounces; sulphate of magnesia, 1 ounce; water 2½ ounces. The passage of flatus is a hopeful sign, and should be assisted by the frequent use of the flatus tube. On the other hand, it is not a good omen when the enemata are retained by the torpid rectum.

3. To allay the sickness, a little lemon juice and soda water is of service. It probably acts by neutralising the alkaline bile in the stomach. Sometimes a little champagne is beneficial. If the vomiting be slight, small quantities of Valentine's meat juice may be given. Brandy and beef tea enemata should be administered an hour after each purgative enema if there be signs of exhaustion.

4. No morphia should be given as long as a chance of life remains. It would only increase the intestinal paralysis, and seal the patient's doom. Moreover, pain is rarely a marked symptom. But where the case is hopeless, morphia may be given freely to combat the dreadful restlessness that precedes the death agony.

5. It is worse than useless to reopen the wound and wash out the abdomen in acute diffuse peritonitis Such a proceeding can only be of service where there is a limited localised collection of blood serum or pus.

6. In some cases the peritonitis is secondary to a suppurating intra-peritoneal hæmatocele. I have already discussed the causes of acute hæmorrhage into the peritoneum. Should the patient not die the hæmatocele will become chronic. A chronic blood effusion may also form without any preceding acute symptoms in cases where extensive vascular adhesions have been broken down and free oozing has taken place—particularly if the abdomen be imperfectly drained. The blood collects in the pelvis distending the pouch between the uterus and the rectum. Above, the collection of blood becomes walled in by lymph and peritonitic adhesions. As a rule these hæmatoceles are slowly absorbed. Should, however, septic changes occur, the clot

breaks down into a grumous pus which is horribly offensive. A more or less severe peritonitis is lit up. The condition may be often diagnosed by bearing in mind the complications met with at the operation. It will be noticed that the abdomen is most distended and hardest in the hypogastrium. On vaginal examination the tense collection of fluid is felt bulging behind the uterus. There is well-marked pyrexia at night, night sweats, loss of flesh and, in severe cases, symptoms of general septic poisoning. The indication is obvious—to remove the decomposing blood. At the most likely spot gently separate the lips of the wound with dressing forceps and when the peritoneum is reached push a round-ended glass drainage tube down to the bottom of the pouch of Douglas. If by this proceeding a hæmatocele is tapped the opening should be enlarged (by tearing), a double-channeled catheter introduced, and the cavity irrigated with plenty of warm iodine water (1 drm. to 1 pint) to remove the stinking blood. A drainage tube should then be inserted. The irrigation should be repeated night and morning till the discharge becomes sweet Another method--not quite so efficacious—is to open and drain the collection through the vaginal roof.

EXTRA-PERITONEAL HÆMATOCELE.

This is an effusion of blood into the cellular space, bounded below by the pelvic fascia and above by the pelvic peritoneum. From the fact that the bulk of the blood is poured into the tissue of the broad ligament it is often spoken of as a "Broad Ligament Hæmatocele." But it is by no means always confined to the limits of that structure, involving as it sometimes does the whole pelvic roof.

It is apt to occur after operations on the pelvic viscera, in which the broad ligaments are ligatured or clamped It is seen most frequently after the removal of the uterine appendages and ovariotomy, and occasionally after hysterectomy.

Mode of Formation.—

1. In a few cases the effusion begins at the time of the operation. In one remarkable case I saw the broad ligament

suddenly fill with blood, forming a tense purple tumour as large as a fœtal head, before the wound was closed. In delivering the tumour through the wound the surgeon may drag unduly on the pedicle and rupture one or more of the blood-vessels. In other cases, in transfixing the pedicle with the ligature needle, the surgeon wounds one of these vessels, and a copious hæmorrhage takes place into the cellular tissue below the ligature.

2. But in the great majority of cases it occurs later—usually during the second or third week after the operation—and, I believe, has its origin in an abortive attempt on the part of the nerve centre governing the process of menstruation, to bring about the menstrual flow. By way of illustration let me describe a case :—A patient, who usually menstruated regularly every four weeks, the period lasting four or five days, had her uterine appendages removed on the 9th of the month. Her previous period began on the 1st and ceased on the 5th. She made an uninterrupted recovery from the operation until the 26th of the month, when a hæmatocele formed in the left broad ligament. Had the operation not been performed she would have commenced to be unwell on the 28th or 29th day of the month.

In the operation, the ovaries and tubes were removed, the menstrual nerves severed, and the upper half of the broad ligament tightly constricted with a ligature. The menstrual centre, as the time for the period approached, brought about in the vessels of the pelvis, and particularly of the broad ligament, that vascular turgescence which usually precedes the menstrual flow. One or more of the turgid damaged vessels in the ligament burst and bled into the cellular tissue—and a hæmatocele was formed.

The Anatomy of a Hæmatocele.—We have seen how the hæmorrhage may be brought about. Let us now see where the blood goes and what becomes of it. The blood is poured into the loose connective tissue, and forms a rounded mass embedded between the two layers of the ligament, which are thus widely separated. The peritoneum, forming these layers, is put on the stretch and resists further distension. The effused blood, driven in the direction of least resistance, infiltrates the cellular tissue below the level of the ligament. It burrows downwards till it reaches the pelvic fascia, which limits it below, the lower surface of the hæmatocele corresponding with the upper surface of the fascia. The distension of the broad ligament lifts the peritoneum bodily upwards. The peritoneum lining the pouch of Douglas is raised, partly by the traction upwards of the broad ligament, partly by the blood dissecting beneath it. A tense collection of blood thus comes to be formed beneath the peritoneum, to one side of and behind the uterus, in front of the rectum, and above the vagina. It tends to burrow backwards along the utero-sacral ligaments to the tissue around the rectum, embedding the latter in a tight collar of effusion. Similarly, the blood may pass forward under the peritoneum in front of the broad ligament, by the side of the bladder, and on to the anterior abdominal wall; or it may escape at the outer margin of the ligament into the cellular tissue of the iliac fossa. Its progress is stopped below by the pelvic fascia, internally by the firm adhesion of the peritoneum to the uterus, and above by the resistance of the broad ligament to further distension. The hæmorrhage is arrested by two of nature's hæmostatics—pressure and clotting: pressure, because the space into which the blood is poured is confined and limited; clotting, because each strand of the connective tissue network becomes a centre for coagulation.

Terminations.—

1. In very rare cases it may burst into the peritoneal cavity. This accident happens only in those cases where a large extra-peritoneal hæmatocele forms during or immediately after the operation. The extreme tension on the broad ligament pulls it out of the grasp of the ligature. The blood then pours into the peritoneum, the hæmorrhage starts afresh, and, if the abdomen be not promptly reopened, the patient rapidly bleeds to death.

2. The patient may bleed to death into her own extra-peritoneal tissue, the blood escaping into the loose tissue of the

posterior and lateral abdominal walls. This, however, is very unusual.

3. It may suppurate and form one variety of pelvic abscess. This is not at all uncommon, and may be the result of the injudicious use of the exploring needle. In other cases micro-organisms probably pass into the effusion from the rectum and infect it. The pus, if it be not evacuated by the surgeon, may discharge into the rectum, vagina, or bladder, or through the abdominal wound. After such discharge, a complete cure, as a rule, results. But occasionally such an abscess becomes chronic, pouring out pus for many months.

4. In the vast majority of cases the blood is absorbed and a natural cure effected. This process may be a very slow one, occupying weeks or months Months afterwards no trace of it may be discovered on vaginal examination. In a few instances, however, the pelvic roof on that side remains permanently contracted, fixed, and indurated.

5. In a small minority of cases the hæmatocele recurs at an interval of several weeks or months. There may be a succession of such disasters disabling the patient.

Clinical Features.—

As a rule the onset occurs a few days before the date of the next menstrual period after the operation. The symptoms vary —in some they are well marked; in others so mild as almost to escape observation.

1. There is a sudden onset of pain in the pelvis, worse on one side. There is often pain in the back and bearing down.

2. Where a large hæmatocele forms rapidly there may be faintness, pallor, and other signs of internal hæmorrhage.

3. The pulse rises, perhaps to 100 or 110, and there is a moderate degree of fever.

4. Defæcation becomes difficult and painful, and there is often a copious mucous discharge from the rectum.

5. The tongue in some cases is coated, and there is anorexia and general malaise

6. On examining the abdomen, a deep seated fixed rounded

mass is felt rising out of the pelvis on one side (usually the left) of the wound. It usually extends one or two inches above the pelvic brim, but occasionally it reaches up to the umbilicus. Internally it reaches the middle line. Externally it extends to the pelvic brim, and in those cases where it invades the iliac fossa, it may reach as far as the anterior superior iliac spine. Its upper surface is smooth and dome-shaped. It is only tender to pressure when the peritoneum over it is inflamed. In consistence it feels solid and brawny, but if coagulation be not complete it is elastic and fluctuating. It is dull on percussion, whilst the rest of the abdomen is often hyper-resonant. On vaginal examination a hard fixed mass is felt to one side of and behind the uterus, displacing it forwards and to the other side of the pelvis. The lower surface frequently presents a peculiar concave vaulting. Mr. Tait thus graphically describes it :—" It is like an irregularly-shaped jelly-fish, rounded above and concave below ; and the edges of the mass are felt to fade off downwards on the walls of the pelvis, just as the groins of a Norman crypt fade off on the brackets or capitals which support them." On rectal examination the characteristic annular structure is felt in cases where the blood dissected backwards around the rectum.

When the process of *absorption* sets in, the pulse and temperature fall to normal, the pain disappears, and the tongue cleans. There is often at this time a distinct yellowing of the skin from the absorption of blood pigment. On examination, the hæmatocele is found smaller and harder, and in a month or so no trace of it may be found.

The occurrence of suppuration is indicated by the familiar symptoms of pelvic abscess. The patient obviously becomes worse. There are often initial rigors. The temperature runs up at night to about 104° F., with a well-marked morning fall. At night there are profuse sweats. The pain becomes throbbing. The cheek on the same side is flushed. The tongue is coated or else bright red, smooth, and glazed like a tomato. There is headache, anorexia, and sometimes vomiting. On examination, the hæmatocele daily becomes larger, tenser, more prominent, and more evidently fluctuating. It finally bursts through the vaginal roof into the rectum, or through the wound, and discharges its chocolate-coloured pus In severe cases the broken-down blood becomes horribly fœtid, and then grave symptoms of septic poisoning may supervene.

Treatment.—

1. Keep the patient perfectly at rest, and leave nature to arrest the hæmorrhage.
2. Should, however, there be evidence that the hæmatocele has burst into the peritoneum and there is alarming internal hæmorrhage, the abdomen should be reopened without delay, the clots washed out, and the bleeding broad ligament religatured.
3. Never be tempted to use the aspirator "to clear up the diagnosis," unless there be undoubted evidence of suppuration. Its indiscriminate use will convert many a benign collection ot blood clot into a septic pelvic abscess.
4. When the effusion has clearly become purulent, and especially if there be septic symptoms, it should be evacuated without delay. If it bulge into the vagina, it should be tapped at the most prominent point with a trocar and canula. Before the latter is withdrawn, a piece of indiarubber drainage tube should be slid through it into the cavity.
5. If the hæmatocele point towards the skin, the lips of the wound should be separated with a pair of dressing forceps, and the latter pushed on into the cavity of the hæmatocele and a piece of drainage tube inserted. If the contents be offensive, the cavity should be irrigated twice or thrice a day with iodine water.

INTESTINAL OBSTRUCTION.

Intestinal obstruction, consecutive to an abdominal section, may arise from a variety of causes. In some cases it is directly due to and immediately follows the operation. In others it is due to secondary changes and does not manifest itself till weeks or months after.

1. It may be due to the inclusion by a careless surgeon of a piece of intestine in the abdominal wound between two of the sutures. When the sutures are tied the included segment of bowel is tightly nipped by the sides of the wound.

2. In suturing the wound the surgeon may unwittingly transfix a piece of intestine if it be adherent to the anterior parietal peritoneum.

In these two cases the obstruction is in the small intestine and is acute—dating usually from the time of the operation Violent retching and vomiting, pain in and around the wound, constipation, distension, and rapid collapse are the chief clinical features. If the cause be suspected one or more stitches should be removed, the wound explored, and the constriction relieved.

3. In cases of supra-vaginal hysterectomy (for myoma) the cervix is dragged forwards into the wound by the transfixion pins. The utero-sacral ligaments, which pass backwards from the cervix and embrace the rectum, are dragged on. If there be great tension on the stump these ligaments will tightly constrict the rectum—even to the extent of producing total obstruction. Such an accident may be suspected where acute obstruction of the large intestine immediately follows a hysterectomy. On vaginal and rectal examination the tense ligaments may be felt. It is a non-infrequent cause of death after hysterectomy. If the tension on the stump cannot be lessened, and there be total obstruction, the best treatment is to perform a lumbar colotomy.

4. The annular constriction which frequently occurs as a result of a broad ligament hæmatocele has been mentioned. Usually the stricture will admit the forefinger, but in rare cases it may entirely occlude the lumen. Whenever obstruction of the large intestine immediately follows the formation of a hæmatocele, this form of stricture should be suspected and a rectal examination made. The treatment indicated is to empty the hæmatocele. If this does not relieve the stricture an attempt

may be made to dilate it. Failing this, if the symptoms be urgent, colotomy may have to be performed.

5. A paresis of the bowel due to atony and flatulent distension is apt to occur in a feeble old woman after the removal of a big ovarian tumour. The sudden relief of pressure seems to favour the formation of gas and a soft painless but very marked distension occurs. At first there are no other symptoms—but should the condition be neglected the lethargy of the bowel may become a paralysis and the patient die with symptoms of slow intestinal obstruction. The treatment indicated is to give a rapidly-acting purgative and administer turpentine enemata.

6. Peritonitis is itself a cause of intestinal obstruction. It causes a paresis, and later a paralysis of the bowels. This paretic condition is induced by at least two factors—(*a*) the over-distension of the bowel with gas; (*b*) the extension of the inflammation to the muscular coat of the intestine I have already discussed the diagnosis and treatment of peritonitis.

7. Intestinal obstruction may occur many months after the operation.

(*a*) A coil of intestine may become adherent to a raw surface left at the close of the operation. Thus it may adhere to the cut surface of the pedicle, the posterior aspect of the abdominal wound, or any raw surface left by the separation of adhesions. If a portion of intestine itself be denuded of its peritoneum, this raw patch is specially apt to become adherent to other structures. When once such an adhesion has occurred, it is easy to understand how at any time in the future a kink may occur and intestinal obstruction result.

(*b*) After a severe attack of peritonitis, the intestines are left permanently and densely matted together, and these chronic adhesions may, months or years after the operation, be the cause of obstruction.

In cases where such obstruction occurs months after an abdominal section, the only sound line of treatment is to reopen the abdomen, search for the adherent coil of intestine, and set it free.

PERFORATION OF THE BOWEL AND FÆCAL FISTULA.

Perforation is one of the gravest disasters of abdominal surgery. It is an extremely fatal complication; and usually the patient's only chance of recovery depends on the formation of a fæcal fistula—a loathsome condition.

Modes of Production.—

1. In cases where the bowel is adherent to the peritoneum of the anterior abdominal wall, the surgeon may wound the bowel in opening the abdomen. This is most apt to occur in those cases where a second abdominal section is being performed, and the incision is made in the line of the old scar.

2. In separating adherent intestines from ovarian tumours and suppurating Fallopian tubes, the surgeon may tear a hole in the bowel; or he may so damage its coat that perforation occurs some days later. This accident may even occur where only the peritoneum has been detached from a patch of intestine. In those cases where before the operation a suppurating ovary or tube has been discharging directly into the bowel, it is impossible to remove the diseased organ without leaving a hole in the intestine.

3. Where the surgeon has included a piece of bowel in one of the sutures closing the abdomen, the patient may succumb either to intestinal obstruction or perforation. Should she run the gauntlet of both these dangers, a fæcal fistula is almost certain to form opposite the offending stitch.

4. In cases where the abdomen has been opened and drained for tubercular peritonitis, there is a peculiar tendency for a fæcal fistula to form, probably from perforation of a tubercular patch in the intestine.

5. After certain operations on the intestine itself (such as enterectomy and intestinal anastomosis), one or more of the stitches may give way and perforation occur. After operation for perityphlitic abscess and recurrent appendicitis, a fæcal fistula frequently results.

6. In a few cases the drainage tube is to blame. If it be an indiarubber tube, the sharp edges of the lateral openings and of

the lower end are apt, especially in children, to saw through the intestinal wall and cause perforation. If an open-ended glass tube be used, and injurious long-continued pressure be made on it by a tight binder, the lower end may punch a hole in the rectum.

Clinical Features.—Where a perforation of the intestine into the peritoneal cavity occurs, the patient suddenly complains of great pain, rapidly becomes collapsed, and dies of acute peritonitis. In less severe cases the first sign of the formation of a fæcal fistula is usually the escape of flatus through the drainage tube. Soon a foul-smelling brownish fluid discharges through the tube, and, later, typical intestinal contents. If the portion of bowel affected be the lower half of the colon, the discharge has the pultaceous consistence, brown colour, and familiar odour of ordinary fæces. But if it come from the small intestine, it is a bright yellow frothy fluid, almost odourless, and containing particles of half-digested food. It has marked digestive powers, and rapidly eats away the epithelium of the skin of the abdomen for several inches round the wound. I have seen such a fistula convert the skin of the whole front of the abdomen into a raw, bleeding, granulating surface. In some cases the whole of the intestinal contents pass out through the wound; in others, there is only a narrow sinus, through which occasionally a little flatus or fæcal matter escapes. When the small intestine has been opened high up and the whole contents are discharged, the patient rapidly emaciates, and dies of marasmus.

Treatment.—

1. Should the surgeon unfortunately wound a coil of intestine during the operation, he should bring it into the wound and close the opening with Lembert sutures. If the rent be a very large one, and the intestinal coat diseased, he should sew the opening in the bowel to the abdominal wound, and make an artificial anus, to be closed at a later date.

2. If a hole be torn in the rectum low down in the pelvis the surgeon must endeavour to prevent infection of the general peritoneal cavity. He has the choice of three procedures :—

(*a.*) He may pass a large open-ended glass drainage-tube down to the bottom of the pouch of Douglas, keep the patient rigidly on her back, and under the influence of opium. For several days as little food as possible should be given. Purgatives and enemata must be avoided as poison. If no fæces escape for twenty-four hours the track of the drainage-tube becomes shut off from the general peritoneal cavity, and the patient will probably escape the danger of peritonitis. The fæcal fistula, which forms slowly, contracts and heals—but it is a long and weary process.

(*b.*) He may plug the pouch of Douglas with a firm column of iodoform gauze brought out through the lower angle of the wound. This gauze is left in situ for five days. It mechanically closes the rent in the bowel and interposes an antiseptic barrier between it and the rest of the peritoneum. After the removal of the gauze, as a rule, a fæcal fistula remains.

(*c.*) In addition, the surgeon may perform colotomy to divert the current of fæces from the rectum until the rent has healed.

Whenever a fæcal fistula forms it should be kept as clean and dry as possible. The lips of the wound should be smeared with boracic ointment, and an absorbent dressing applied and frequently changed. If possible, the patient should be kept in bed until it is healed. When the fistula is high up in the small intestine and the patient is emaciating, peptonised nutrient enemata and suppositories should be administered in addition to plenty of easily digested highly nutritious food by the mouth.

At a later date attempts must be made to close the opening. If it be small and the quantity of fæcal discharge scanty, the repeated application of Paquelin's cautery will sometimes suffice to cause its obliteration. If this fails a plastic operation should be performed, the mouth of the opening being rawed by denudation or flap splitting and closed with silkworm gut sutures. If this and similar proceedings are likewise unsuccessful then, as a last resource, the abdomen may be reopened, the adherent bowel separated from the abdominal wall, the edges of the opening in the gut freshened, inverted, and brought together with Lembert sutures. This is a risky operation and only a skilled surgeon should attempt it.

STITCH ABSCESSES.

This is a minor complication that more often troubles the abdominal than the general surgeon. It is *predisposed* to by several conditions:—

1. The abdominal wall is never at rest: it is constantly moving with the act of respiration.

2. If there be vomiting or coughing, with every act the stitches are violently dragged on.

3. If there be tympanites, the stitches are subjected to an increasing continuous strain.

4. Fat florid patients are more subject to them than thin anæmic ones.

5. The surgeon may have tied his stitches too tightly.

But whilst these conditions predispose to the formation of stitch abscess the *exciting cause* is nearly always *dirt*:—

1. The needle carrying the sutures may be dirty and infect the track.

2. The skin pierced may be dirty, and then particles of germ-laden epithelium are dragged in with the suture.

3. The material used for the suture may be dirty. Probably nine out of ten stitch abscesses are due to this cause. The best material for suturing the abdominal wound is undoubtedly silkworm gut. It is easily rendered aseptic; it is pliable, easily tied, absolutely non-irritating to the tissues, and is easily removed. It may be left in situ for weeks without causing suppuration. Silk acts like a wick and becomes soaked with blood. If the silk be not perfectly aseptic, this blood undergoes putrefactive changes and acts as an irritant all along the track of the suture—in fact, the suture becomes a seton. Even if aseptic silk be used, but the surface of the wound be not kept surgically clean, the superficial portion of the suture becomes infected, and this in turn contaminates the rest. The sutures just above or below a necrosing hysterectomy stump or

a drainage-tube through which offensive discharge escapes, are almost certain to suppurate.

Symptoms, etc.—About the third or fourth day a small hard tender swelling, about as large as a hazel nut, forms around each of the infected stitches. The skin becomes hard and brawny and finally red and inflamed. On pressure, pus oozes out alongside the stitch. There is often a moderate degree of fever.

Treatment. — This consists in the early removal of the offending suture to allow of the escape of the pus. A boracic lint poultice should then be applied to the wound.

RUPTURE OF THE WOUND.

This terrible accident is fortunately exceedingly rare. It is *predisposed* to by anything which interferes with the union of the abdominal wound—by sepsis and suppuration. Cases of hysterectomy for myoma (where the pedicle has been clamped, and the lower portion of the wound is filled with a mass of necrosing tissue) are specially liable to it. When the slough separates, there is left a chasm separated often only by a thin partition of tissue from the general peritoneal cavity. Too early removal of the stitches may also predispose to rupture.

The *exciting cause* is always some muscular effort, such as straining at stool, vomiting, or coughing. The wound suddenly bursts open, and the intestines escape. This accident is nearly always fatal, from acute peritonitis, particularly if the wound at the time be in a septic condition.

Treatment —

1 Wash the extruded bowels with some warm, weak, antiseptic solution (such as boracic acid), and cover with a moist, clean, warm compress or flat sponge.

2. Thoroughly disinfect the wound and its surroundings.

3. Gently return the bowels to the abdominal cavity, taking out one or more stitches if necessary.

4. Irrigate the peritoneal cavity, and sponge it clean. Insert a drainage tube, and close the wound with fresh sutures.

PAROTITIS.

This curious complication usually occurs during the second or third week after the operation, and may nearly always be traced to a septic cause. It is characterised by a painful brawny swelling of the parotid, and often submaxillary glands. One side is first attacked, and a few days later the other follows suit. The mouth cannot be opened, nor can the head be rotated on the neck without distress, and speech and deglutition become difficult and painful. There is general febrile disturbance, anorexia, and a furred tongue. The inflammation is apt to go on to suppuration, the occurrence of which is indicated by œdema of the skin, rigors, high fever, and later by deep-seated fluctuation. The pus often discharges through the ear.

Treatment.—A free saline purge should be given at the onset, the inflamed area painted with belladonna and glycerine, and the head and face wrapped in cotton wool. A hot poultice will give relief if there be much pain. Brandy, egg flip, and liberal doses of cinchona should be administered. Should suppuration occur, the pus must be evacuated by one or more horizontal incisions anterior to a vertical line crossing the angle of the lower jaw.

Prognosis.—This should be guarded, as not infrequently suppurative parotitis is the first manifestation of pyæmia. Its occurrence, therefore, should always direct the surgeon's attention to the field of operation, and if there be a focus of infection, this must be vigorously dealt with.

SURGICAL RASHES.

A common but harmless complication is the occurrence sometime during the first ten days after the operation of a copious cutaneous eruption. I have observed four types :—

1. Typical urticaria—raised wheals with white crests and red bases.

2. Small red raised discrete papules, the size of mustard seeds, with a pale pink field between.

3. Irregular dusky red blotches, not unlike those of measles.

4. A uniform vivid scarlet blush resembling that of scarlatina.

The rash may attack any part, but the favourite sites are the extensor aspects of the elbows, forearms, hands and knees, the face and front of the chest. It is often curiously symmetrical in its distribution and erratic in its course—suddenly disappearing from one area to invade another. The patient frequently complains of itching and tingling, but otherwise feels well. As a rule there is no fever, no sore throat, headache, or malaise. Occasionally, however, the attack closely resembles a mild scarlatina. The rash lasts from one to four days. As it is fading the area of skin affected often acquires a yellowish tint. Where the rash has been very vivid and copious it is generally followed by a branny desquamation.

Causation.—These rashes are not peculiar to any particular class of abdominal operation, occurring with equal frequency after nephrectomy, ovariotomy, hysterectomy, and exploratory incisions. They may occasionally be due to certain articles of diet (such as fish) or to certain drugs (such as iodoform, carbolic acid), or the use of turpentine enemata, but on the other hand they occur where none of these have been given. Nor are these rashes, in the ordinary sense of the word, septic. As a rule, they occur in patients who otherwise recover without a bad symptom. There is, however, evidence to shew that they are infectious from one patient to another. I have seen the eruption attack four patients consecutively occupying the same bed in hospital.

Treatment.—If the tongue be furred and the bowels confined, a saline purgative should be given. Otherwise, no special treatment is indicated.

VENTRAL HERNIA.

One of the occasional remote results of an abdominal section is the formation of a ventral hernia, the protrusion occurring at the weakest point of the cicatrix. Let me briefly indicate the more important causes :—

1. It is more apt to follow hysterectomy for myoma than any other operation.
2. It is predisposed to by a long abdominal incision, the prolonged use of the drainage tube, and the occurrence of prolonged suppuration in the wound.
3. The exciting cause is usually some severe muscular effort, such as straining at stool, vomiting, coughing, or lifting some heavy weight.
4. If the patient discard her belt too soon, or if the belt be an ill-fitting one, a hernia is liable to form.

REPORTS OF CASES.

A CASE OF INTUSSUSCEPTION, WITH A REVIEW OF THE SUBJECT.*

BY THOMAS NELSON, M.D.

H. S., a boy aged eight years, was suddenly seized whilst coming home from school, on June 21st, 1893, with intense abdominal pain. I saw him shortly afterwards, and after a superficial examination judged the case to be one of colic. I ordered him an alkaline mixture and sent him to bed. During that day he vomited two or three times.

Next morning the temperature was found to be normal On examination, the abdomen was soft but somewhat tender on pressure. No swelling or irregularity could be detected. He had a grain and a half of calomel which was to be followed by an enema in four hours. The enema came back as administered. That evening his mother, on her own responsibility, gave him two drachms of castor oil and repeated the dose at 2 a.m. This produced copious and offensive vomiting, after which he went to sleep much relieved

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* A Paper read before the Queen's College Medical Society, November 8th, 1893.

On the afternoon of the 23rd, the obstruction being apparently unrelieved, he was seen by a physician, when a careful examination was again made. No definite diagnosis was made. He was ordered small doses of magnesia sulphate. He had three drachms in all, which only aggravated the vomiting. The pulse was 120. Temperature still normal.

On June 24th, Mr. Chavasse was sent for with a view to immediate operation. From his notes, kindly lent, I extract the following:—"No tympanites, no pain, with the finger in the rectum some fulness to be felt on the left side. Exact condition not diagnosed." It was decided to try a turpentine enema. This was given in the knee elbow position in large quantity, slowly administered, and was followed by a large scybalous motion. The patient slept all night.

On the 25th the enema was repeated and a large motion—very offensive and slightly tinged with blood—was then passed. He only vomited once that day. He was fed chiefly on Wyeth's meat juice.

About 5 a.m. on the 26th he had a bad fainting attack, from which he rallied. The abdomen shewed signs of fluid being present. No tumour or other definite sign was discovered. About mid-day the vomiting and pain returned and, in consultation, it was decided to open the abdomen. The patient was removed to Mrs. Spofforth's private hospital and, with the assistance of Mr. George Heaton, Mr. Chavasse opened the abdomen in the middle line with the incision 2½ inches long. A portion of collapsed ileum was at once found and traced down to the cæcum. The appendix was found to be normal. The ileum was traced upwards, and about two feet above the valve a portion of the bowel was found very tense and distended for about a foot. In appearance it was soft and sloughy looking. The intussusception—for such it was—was found to be gangrenous and irreducible. It extended as far as the finger could reach. At this point the patient became dangerously collapsed and some minutes had to be spent in injecting brandy into the rectum, and using other restoratives. It was deemed advisable to make an artificial anus by opening the intestine and stitching its walls to the abdominal wound, as any further radical procedure would inevitably have killed the patient. The opening was made at the apex, as it was found impossible to reach the neck of the intussusception.

On June 27th the patient had rallied from the operation. Nutrient peptonised enemata were administered. He vomited several times, and the temperature rose for a few hours to 100° F., falling to normal in the evening. Iodoform dressings and hot poultices were applied over the wound. He continued in this condition till 9·15 on the 28th, when a portion of slough came away which was followed by a copious chymy discharge from the intestine.

On the 29th there was considerable abdominal distension with pain. About two inches of gangrenous slough were removed. He had not vomited for 14 hours, and at 3-30 the patient said he felt something burst, and immediately there was a very copious discharge of extremely offensive pale fæculent matter.

On the 30th the discharge was still copious. The left little finger was introduced into the gut and the passage seemed clear of intussusception. Small quantities of peptonised food and milk were given by the mouth. The wound being dressed with boro-glyceride and tow.

He continued in the same state till July 2nd, when a very long thin strip of sloughy intestine came away. He improved very rapidly for some hours—the distension going down and the appetite becoming ravenous.

On July 3rd another piece of slough came away four inches long.

On July 4th the distension reappeared with pain on the right side of the abdomen and some redness. The pulse rose again to 120, temp. normal. Towards evening the pain became worse, vomiting recurred, and it was apparent that unless something was done he would die.

With the assistance of Mr. Haslam, Mr. Chavasse reopened the abdomen and separated the bowel from its adhesions. These were tolerably firm. In the process of separating the intestinal wall gave way at one point. The peritoneal cavity was packed with sponges. A small extra-peritoneal abscess was found just behind the left rectus muscle. Makins' clamps were applied to the ileum above and below the portion of gut which was formerly the sheath of the intussusception and the portion of bowel was resected. The open ends of the gut thus made were closed with Lembert's sutures. The intestine was then incised in its surface remote from the mesentery, and two of Senn's plates were inserted. On the distal side, owing to the prolonged collapse of the gut, considerable paring of the plate was necessary to permit of its insertion, and even then fixation was accompanied with difficulty. The anastomosis was completed by approximation of the plates and tying of the inserted threads. The peritoneum was carefully sponged out, a glass drainage tube inserted at the lower angle of the wound, and the abdomen closed. The time taken for each operation was one hour.

The patient rallied from the second operation in about an hour and a half. At 8-10 p.m. there was discharge from the rectum of mixed enema and intestinal contents. At 8-20 he suddenly stopped breathing and the case terminated.

Intussusception of the intestine is a far more common affection than those of us who are engaged in general practice would be inclined to believe. Of all cases of intestinal obstruction it is said that intussusception is the cause in at least three-eighths. An intussusception consists of the invagination of one portion of the intestine into the part immediately below it, for a greater or less length, and on section presents six layers—three on either side of the canal, all more or less parallel to one another. Mucous membrane lies in contact with mucous membrane, and peritoneum with peritoneum. The external of the three layers is known as the intussuscipiens, or sheath. The innermost cylinder as the entering layer, and the middle one as the returning layer. The two last layers are known as the intussusceptum. The "neck" of the intussusception is at its upper part. The "apex" at the lower end of the intussusception. Partial intussusceptions caused by polypus, intussusceptions of the dying, etc, will not be considered.

The chief varieties of this disorder are known as—(1) Enteric, which occur in the lesser bowel, anywhere from the duodenum to the lower part of the ileum. They are most common in the lower jejunum and ileum, and most rare in the duodenum They vary in length from three inches to ten inches. Henry Morris records a case where two feet of the ileum were invaginated; and in a case reported by M. Bucquoy the intussuscepted portion was two yards. (2) Colic, in which the ascending colon is invaginated into the transverse, the transverse into the descending, or the descending colon into the sigmoid flexure. The two last-named are the most common. These intussusceptions are all short. (3) The ileo-cæcal. These are the most common of all varieties of intussusception. (4) The ileo colic are the most rare. In the former the ileum and cæcum pass into the colon preceded by the ileo-cæcal valve. This kind may be very long, reaching sometimes down to the rectum, where it can be felt by the finger. In the ileo-colic variety the cæcal valve remains *in situ*, and the ileum descends through it.

Another variety, mentioned by Leichtenstern in Ziemssen's Cyclopœdia, is the iliaca-ileo-colica. Here a primary intussusception is formed in the terminal part of the ileum. This may pass through the valve or be arrested there, and be associated with an invagination of the cæcum into the ascending colon. The relative frequeney of these conditions is given by the above-quoted authority as—ileo-cæcal 44 per cent., enteric 30 per cent., colic 18 per cent., ileo-colic 8 per cent. With the exception of the ileo-colic variety, all intussusceptions increase in length at the expense of the receiving layer. Retrograde, double, and triple intussusceptions are so seldom met with as to call for little remark. A secondary intussusception is now and then met with in the colon and small intestine.

The pathological changes which take place require special consideration. The part played by the mesentery is very important. It is drawn, in the form of a cone, into the intussuscipiens, and the larger the invagination, the greater becomes the strain on the mesentery. This pulling causes a bend or curve in the tumour, the concavity of the curve being towards the mesenterial attachment and looking towards the root of the mesentery. The same thing holds good with the colon, but apparently not quite to the same extent, because in intussusceptions of the colon the layers are often found to be parallel, the aperture of the canal in the centre and directed towards the central axis of the gut below. They may be either straight or curved. The rectal ones are always straight. Even with an intussusception present, obstruction and strangulation are not necessarily produced. Cases are on record which have lasted from one to four months. Usually, however, the venous return is obstructed, and gangrene from pressure ensues, causing death, which also may come about in chronic cases from wasting, from long pain and sickness, and other effects of narrowing of the bowel.

The actual obstruction of the intestine is brought about by a variety of causes, including the dragging of the mesentery, which makes the orifice slit-like, and which may be opposed to the wall of the receiving layer. The curve on the intussusception may greatly narrow the lumen of the inner cylinder. The thickening of the tunics of the involved bowel, caused by inflammation and congestion, may completely block the central canal. One case is recorded in which the lumen of a previously patent invagination was blocked by some undigested rice.

Intussusceptions may be reducible or irreducible. Chief among the causes of irreducibility are adhesions of an inflammatory character. These are most common at the neck, and least frequently met with at the apex. They may be found all along the course of the intussusception. In some form or other they occur in about eighty per cent. of the cases, and in acute cases only, the percentage is 45. The earliest time for them to occur is the third day of the disease. Swelling and thickening is another frequent cause of irreducibility. It takes place chiefly along the convexity of the intussusception, producing an alteration in shape and density of the tumour, thus preventing reduction. A twist may occur in the invaginated bowel, and in ileo-colic invaginations the valve grips the intussusception and fixes it.

The changes that take place in the gut above the tumour are dilatation and congestion—sometimes, in chronic cases, hypertrophy. Fæcal accumulation is rare, so also is perforation. Tears do sometimes occur.

The changes in the intussuscipiens are few—congestion, thickening, multiple ulcers, gangrene. In 175 cases Leichtenstern found 28 perforations.

The changes in the intussusceptum consist of engorgement with blood, hæmorrhages into its substance, or on its surface. From this cause we get the symptom of bloody stools, œdema, and gangrene. The thickening, as before stated, is most found at the apex and along the convexity. The gangrene usually appears first and remains most advanced in the middle layer, with the exception of ileo-cæcal invaginations in which the inner cylinder is most affected. The effect of gangrene and consequent separation of the intussusceptum is subject to variations depending upon the part at which separation first takes place. This may take place at the neck. The middle cylinder first separating, unfolds itself, and when the inner cylinder separates, the discharged gut will have its mucous surface innermost. Reverse the process, and the mucous surface will be outermost. If gangrene commence at the apex, it will discharge in shreddy fragments.

The causes of intussusception are many and varied. The vivisection experiments of Nothnagel, recorded in 1884, conclusively prove that there is not only a spasmodic form of intussusception, but a paralytic form as well, and that both depend upon irregular action in the muscular wall of the intestine. The contracted or paralysed portion of gut, as the case may be, is as it were swallowed by the bowel below. When once a quite small intussusception has taken place, it acts as a foreign body, and stimulates the intussuscipiens to contract, and so force the inturned gut along its lumen.

Attacks of colic are early symptoms of the disease. These arising from irregular muscular action Those suffering from, or who have suffered from typhoid fever, cholera, muco-enteritis, reduced strangulated hernia, are liable to it. It occurs, however, chiefly in the young, in whom nerve processes are particularly active. Diarrhœa of children, improper feeding, in which cases undigested food lies about and irritates the ileo-cæcal valve, more especially producing tenesmus of that sphincter-like apparatus and, as a consequence, irregular muscular action followed by invagination.

The remote or exciting cause is often problematical. Such, however, may be masses of undigested food, cherry stones, injuries, cold, the drinking of copious cold draughts whilst perspiring. Cases of burns in children, polypi of intestine, strictures, malignant disease, etc. In a very large percentage of cases no cause can be ascribed for the malady at all.

Symptoms.—The types, from a clinical point of view, of this disorder range themselves under the following headings :—

1. The ultra-acute cases—dying within twenty-four hours.
2. The acute cases—lasting from two to seven days.
3. The sub-acute—from seven to thirty days.
4. The chronic — lasting for varying times beyond one month.

Amongst all cases of obstruction of the intestine Leichtenstern states that intussusception is the cause of the malady in about one-third of the cases.

Out of one hundred cases Treves found 50 per cent. acute, 32 per cent. sub-acute, and 18 per cent. chronic.

As regards sex there is very little difference. It is slightly more common among males than females. The younger the individual the more marked is the preponderance of males. Taking the mean of many tables that have been published it has been ascertained that about 53 per cent. of the cases occur before the age of eleven. Between eleven and twenty the average is 12 per cent. Between twenty-one and forty, 20 per cent. Between forty-one and sixty, 11 per cent. Beyond sixty, 4 per cent. As a general rule there is no special previous history in cases of this disease. In 75 per cent. of the cases the onset is sudden. In the ileo-colic variety it is nearly always sudden. In the colic and rectal varieties it is gradual.

Pain is always the first symptom. Sometimes, but rarely, tenesmus with dysuria are present, and occasionally the first distinctive sign is hæmorrhage. Some cases, which prove ultimately to be chronic ones, occasionally begin with very acute and urgent symptoms.

In the acute cases the symptoms depend on strangulation of the gut with obstruction to its lumen. The pain is paroxysmal, the intervals varying very considerably. There is usually tenesmus, often diarrhœa, accompanied, as a later evidence, with the passage of bloody mucus. A tumour of a more or less sausage shape, may be felt in the abdomen. Vomiting may be an early or late symptom, according to the seat of the lesion; consisting at first of food and mucus, afterwards of green fluid, becoming stercoraceous as time advances. Sometimes all the symptoms are wanting and the case is very ambiguous. In the acute and sub-acute forms the pain is at first very acute, afterwards subsiding considerably, more especially when gangrene supervenes. In the ileo-colic variety the pain is agonising. Violent attacks of pain may come on after premonitory definite but trifling attacks of discomfort. The paroxysmal character of the pain is said to indicate incomplete obstruction of the lumen of intestine. As the case advances, the intervals between the paroxysms become shorter, the periods ranging from twenty to thirty minutes. Violent peristaltic movement is the chief cause of the pain. In the small intestine the pain is more severe than when the large intestine is affected. The abdomen if not tender from the first, usually becomes so, especially about the site of the invagination. This early sign is a most important one as a probable guide to diagnosis. Vomiting is not usually so conspicuous a sign as in cases of strangulation by bands. It does not appear as an early symptom, is less apt to become stercoraceous, and fluctuates considerably. It is more constant in acute than in chronic cases. In acute cases it may come on shortly after the pain. Now and then, however, it does not appear at all in the whole course of the malady, and it is sometimes postponed from the third to the fifteenth day. Vomiting is least severe and least constant when diarrhœa is present, which means when the lumen of the intestine is patent. After vomiting at long intervals much relief is usually experienced. This is a peculiarity of intussusception cases compared with other forms of obstruction. The vomited matters are chiefly bilious, and in only 25 per cent. of the cases of an acute or sub-acute character is it found to be fæculent.

In chronic cases vomiting is said to be a symptom in only 7 per cent. It is most frequently noticed in ileo-colic cases, appearing on the fourth or fifth day. Blood has been found in the vomited matters in cases occurring in children when the disorder is of the enteric type, but is a very rare symptom.

Briefly stated, vomiting is most marked in enteric and ileo-colic forms, less marked in the ileo-cæcal type, and least of all in the colic and rectal varieties.

As regards the state of the bowels—diarrhœa is common, constipation much less so, the one sometimes replacing the other. Diarrhœa most frequently precedes the elimination of a gangrenous slough.

Hæmorrhage is found in about 80 per cent. of the cases. The more acute the case, the more common the symptom. It occurs in about 50 per cent. of chronic cases, and is more marked in children than adults. It is more constant in ileo-colic cases than in ileo-cæcal, next in colic cases, and least constant in enteric cases. The amount of blood is not usually excessive.

Tenesmus is a very common symptom, and occurs in 50 per cent. of acute cases; 13 per cent. of chronic cases; the mean for all cases being 24 per cent., according to Treves. The severity of the tenesmus depends on the nearness of the intussusception to the anus. It is least often met with in the enteric form In 94 cases marked by tenesmus Leichtenstern found that 4 were enteric, 75 ileo-colic, and 15 colic.

Coming to general symptoms we find that, except in infants, collapse is less marked than in cases of strangulation by bands. The temperature remains often sub-normal, as in cases of shock. Thirst is not usually a prominent symptom as in other forms of obstruction Tension in the abdomen is not met with till peritonitis manifests itself; meteorism is also rare, only occurring at the end of the attack when the lumen of the bowel is completely occluded.

On palpation, a tumour can be felt in at least 50 per cent. of the cases, and is most easily detected in the ileo-cæcal and colic varieties; least often is it observed in the enteric and ileo-colic:

Ileo cæcal	61 per cent.
Colic	52 ,,
Enteric	24 ,,
Ileo-colic	23 ,,

It is most distinct in children, and varies in size from a hen's egg to a man's fore-arm. It is usually sausage-shaped. When occupying the splenic or hepatic flexure of the colon it cannot be felt. The consistence of the tumour varies with peristalsis, being softer during a period of quiet than during a paroxysm of pain. On rectal examination, which should always be done, a tumour is often felt, especially in children. The tumour feels to the finger like the os uteri—the lumen of the gut being contracted and the edges of the intestine swollen. The date of its appearance varies in all acute and sub-acute cases from the second to the seventh day, and in chronic cases from the fifteenth day to the seventh month. It is often the cause of an error in diagnosis, being sometimes mistaken for a polyp, piles, prolapse. Great care is required in making out the exact character of the tumour before accuracy can be obtained. In the chronic forms of this affection it is found that the ileo cæcal intussusception is the most common, occurring in about 60 per cent. of the cases The colic comes next with 15 per cent., the enteric 15 per cent., and ileo-colic 10 per cent.

The clinical features are most confusing. Out of 55 cases collected by Rafinesque 27 were wrongly diagnosed; some being mistaken for fæcal accumulations, others for rectal polyp, cancer, ulcer of stomach, dyspepsia, chronic dysentery, gastro-enteritis, chronic peritonitis. Cases are on record which have been protracted for a year, and one case reported by Pohl lasted eleven years, dying ultimately of an acute attack.

The onset is usually indefinite. In 30 per cent. of the cases the commencement is abrupt and subsequently assumes a chronic form. The pain is paroxysmal, the intervals seldom regular, and vomiting not conspicuous—this symptom being most constant in the ileo-colic and enteric forms. The appetite is usually much impaired, and a normal state of the bowels is most rare. There is blood in the stools in about 50 per cent. of the cases and tenesmus in about 13 per cent. Purgatives sometimes produce aggravation of the symptoms and sometimes give marked relief. Coils of intestine may be seen through the wasted wall of the abdomen, because the muscular coat of the gut above the obstruction is hypertrophied. A tumour is found in about half the cases, and in about 30 per cent. of these it reaches the rectum.

Course and Prognosis.—An examination of fatal cases, as shewn by Treves, gives the relative frequency of the different forms :—

Acute	48 per cent.
Sub-acute	34 „
Chronic	18 „

The ultra-acute is very rare. Five cases in 270 having been found by Leichtenstern.

The enteric and ileo-colic forms are usually acute or sub-acute, and terminate within the first fourteen days. Colic and rectal cases are usually more chronic. The general mortality is 70 per cent. of all cases, slightly more in females than in males;

distinctly chronic cases have a very high mortality, and so also cases in infants. Death, according to Leichtenstern, takes place in the different varieties in the following proportions :—ileocæcal, 70 per cent.; enteric, 57·8 per cent.; colic, 70·9 per cent.

The methods of spontaneous cure may be briefly stated :—

1. Those occurring in invaginations still reducible.
2. Those occurring fn invaginations quite irreducible.

To the first belong spontaneous reduction cases which are always uncertain, the condition present being accountable for often by other causes such as impacted food, etc.

To the second category belong two kinds of cases In one a fæcal fistula is formed in the bowel above the intussusception ; in the other spontaneous cure is brought about by elimination of the invaginated bowel. The first is very rare. Bruchet records a case in which a man aged 67 passed, for three or four months before his death, fæcal matter with his urine. At the autopsy was found an intussusception of the colon into the sigmoid flexure and above it a fistulous opening into the bladder. I once saw, in consultation with a medical friend, an obscure case of this kind and suggested this diagnosis, but I have been unable to trace the case since. Elimination of the invaginated bowel by gangrene is the only common form of spontaneous cure. It occurs in 42 per cent. of all cases. It is greatly influenced by the position of the intussusception and the age of the patient. It is most common in the enteric form (61 per cent.), and the greater the age of the patient the more the chance. It only occurs in 2 per cent. of those under five years of age, and in 38 per cent. in those under ten. The time the elimination takes varies from three days to six months By far the most common time of separation being some part of the the third week.

But even if the intussusception is eliminated this does not mean cure. The older the patient the greater the probability that death may ensue afterwards.

The modes of death most frequently met with are rupture at the neck and peritonitis. The fusion being slight at the point of union the intussusception blocks the intestine causing distension and rupture. Persistent ulceration may remain above the separation line. Chronic diarrhœa or perforation may ensue. Intra-peritoneal or sub-peritoneal abscess is not uncommon, and part of the old intussusception may remain and give rise to a new one.

The hæmorrhage incident to separation is sometimes fatal, and pyæmia, thrombosis of iliac veins and gangrene of a limb are amongst the secondary results of nature's cures. Stricture of the gut is very rare.

As signs of the evacuation of a slough may be noted foul shreddy motions, bloody discharge, diarrhœa coming on after constipation.

When limited gangrene in the inner and middle layers takes place a rent may occur which will allow fæces to pass between the intussusceptum and the intussuscipiens which, of course, would come under the head of spontaneous cure. It is the most rare of all forms of separation.

As regards the treatment of this condition, much has been written concerning it. It must suffice briefly to indicate the main lines laid down by various authorities. The methods may be divided into non-operative and operative.

The first difficulty is that of diagnosis; and this becomes the more important because the treatment of intestinal pain can so successfully be carried out by opium that one is often tempted to use it before the real nature of the case is made out, and thus symptoms become masked and the difficulty of diagnosis increased.

The feeding of the patient requires careful attention. In the enteric forms peptonised enemata are very useful when diarrhœa is not present. When the obstruction is low down and tenesmus well marked, beef juice and extract of blue peas—as recommended by Hugh Owen Thomas—may be given without harm. So also arrowroot, sago, linseed tea, rice water, iced water. With a patient on starvation diet like this, the temperature must be maintained with hot bottles.

Opium in small doses in the form of morphine under the skin, after the diagnosis has been made, serves all the ends that can be hoped for from drugs in this disease. The experiments of Nothnagel on the rabbit's intestine shew that small doses of the drug stimulate, whilst large doses paralyse the inhibitory nervous mechanism of the intestine.

Purgatives do unmitigated harm in all cases save those of fæcal obstruction, or cases of partial mechanical obstruction of the bowel; also in incomplete chronic intussusceptions in which the lumen of the bowel is not blocked. In these cases they are admissible, for the purpose of liquefying the bowel contents and allowing them to pass.

Massage in conjunction with Swedish movements — the patient lying over an opening in the table, face downwards— has been used.

Enemata cannot pass the ileo-cæcal valve unless the patient is under an anæsthetic or morphine, and even then it is doubtful whether they pass or not. Enemata should be given with the patient in the knee elbow position, and through a long syphon tube. The longer and higher the tube, the greater the pressure. Placing the nozzle of a soda water syphon into the rectum, and firing its contents into the patient, has also been recommended as an easy method of gas dilatation. A seidlitz powder, each part introduced separately and in solution into the rectum, answers the same purpose, and is said to successfully pass the valve.

Jonathan Hutchinson says: "In cases of intussusception, recognised as such and irreducible by other means, the abdomen should be opened."

In the preliminary laparotomy, which is usually made in the middle line, care should be taken as to the method of examining the interior. First, the cæcum must be found and examined, then collapsed coils of intestine carefully traced, and hernial openings examined. When the intussusception has been found, various methods have been used for relief of the obstruction. Enterectomy or resection of the bowel is the only radical measure from which much may be hoped for. This can be carried out in several ways First, by simple division of the intestine above and below the intussusception, and, after its removal, stitching the two ends of intestine together and dropping them back into the abdomen. Secondly, by making a temporary artificial anus, and afterwards, when the patient has rallied, doing a resection. Thirdly, Treves uses a clamp of his own, which grasps the two ends of the bowel and holds them in position, so that the ends of intestine may be easily brought together. Another clamp for the same purpose is that of Bishop. Treves advocates the removal of a triangular part of the mesentery, not quite up to the edge of the bowel. After tying bleeding points, the edges of mesentery are brought together with sutures, and Lemhert or Gussenbauer's stitches are used for the intestine.

It is said that the operation which makes an artificial anus is the safest, as it gives the intestine time to regain tone and the obstruction a chance to be thoroughly relieved through the abdominal wound. This operation does not take so long. Lastly, there is the operation done in my case with Senn's plates which offers many advantages as a routine method of operation concerning which I hope to hear surgical friends speak with more authority than I can.

Briefly stated, the general treatment of intussusception resolves itself into giving opium as indicated, using enemata to try to effect reduction, and early laparotomy if these fail. Waiting for the elimination of the gut by natural means results in the death of 98 per cent of the cases (including recent and remote effects). The sooner the operation is done the better, after conclusive evidence is to hand of the irreducibility of the invagination.

The difficulty of these cases in private practice is enormous, and if my painful experiences and possible mistakes thus related will assist others to steer in a more successful course my end will be attained.

REPORTS OF SOCIETIES.

BRITISH MEDICAL ASSOCIATION.
BIRMINGHAM AND MIDLAND COUNTIES BRANCH.

The second meeting of the Session 1893–4 was held on Thursday, November 9th, 1893. In the absence of the President (Dr. Rickards), Dr. SAUNDBY presided, and there were 58 members present.

The following members of the Association were elected members of the Branch :—Dr. Douglas Stanley and Mr. Arthur Hunt.

Lupus Erythematosus. — Dr. Leslie Phillips presented a woman, aged 53, with the erythematous form of Lupus Erythematosus, occupying the classical bat's-wing shaped area on the face. The point of interest lay in the history of constantly recurring attacks, pointing to circulatory defect and of a syncopal nature, to which the patient had been subject from childhood, and to which was attributed some etiological significance. No manifest heart disease was discoverable, but the rapidity of action was liable to variation within wide limits.

Dr. Leslie Phillips presented a case for diagnosis In the beard region of a man of 56 there had existed for a year a dry, deliberately spreading eruption, with raised and rounded but not translucent edge. In the centre are some indications of atrophic scarring, and the lower lip is being invaded. It has never ulcerated or been pustular, but is finely desquamative. There is not much alopecia, and no tricophyton elements can be detected. It was conjectured that it possibly might be a syphilide, although history, admitted or inferential, was entirely absent. The diagnosis appeared to lie between tinea, rodent, and syphilis.

Excision of Clavicle.—Mr. Haslam shewed a man, aged 34, whose clavicle he had removed twelve months ago for sarcoma.

The patient was able to do heavy manual work without any difficulty whatever, and the loss of the bone had not caused any appreciable deformity.

Cystic Kidney.—Mr. Jordan Lloyd shewed a cystic kidney which he had removed successfully from a man thirty-five years of age by lumbar nephrectomy. About nine years before the patient had been violently struck in the abdomen and was laid up for a few days in consequence. Since that accident he had been subject to paroxysmal attacks of pain which he had regarded as due to "wind" and it was for this symptom that he sought advice. The kidney was larger than an adult head and consisted of many separate cystic dilatations, scarcely a trace of kidney substance remaining. The man had made a perfect recovery, and was now better than he had been since the original accident.

Mr. Lloyd also shewed a set of self-retaining retractors or wound hooks which had been made for him by Messrs. Dowse Brothers, of London. The object of the instrument was to dispense with the hands of assistants during operations in which wound edges had to be held apart, so as to enable the operator to continue a deeper dissection, such as in the ligature of arteries, tracheotomy, hernia, removal of deep lymphatic glands, etc.

Dr. E. N. Nason shewed a hypodermic syringe of his own invention, consisting of an india-rubber force ball and a glass barrel bent at a right angle to which is adjusted the needle. The advantages claimed for it are that it cannot get out of order, that the parts with which the solution comes in contact can be boiled or otherwise made aseptic, that each part is replaceable separately, and that the syringe can be put away quite dry.

Vesical Calculus.—Mr. Morrison shewed a man, aged 31, from whom he had removed a large vesical calculus by suprapubic cystotomy. The patient, who had suffered from bladder trouble for more than twenty years, presented himself on Aug. 17 last, complaining of increasing pain and incontinence of urine; and three days later the operation was performed. The stone (which was also shewn) weighed, on removal, exactly seven ounces avoirdupois, and measured seven-and-a-half inches in circumference. It was spheroidal in shape, with a rough, tuberculated surface, scrapings of which yielded, on analysis, uric acid and oxalate of lime. The size and shape of the calculus increased the difficulty of extraction, which was only effected after the original incision had been extended. The patient made a safe and rapid recovery, leaving the Queen's Hospital on the thirty-sixth day, with the supra-pubic wound closed, and the urinary functions restored to the normal condition. Mr. Morrison remarked on the advantage of a cruciform incision into the bladder in that class of cases, where, owing to the magnitude of the stone, a longitudinal incision of sufficient length endangered the peritoneum.

Paper.—Mr. Lawson Tait then read a paper on "An Analysis of the Evidence submitted as the Basis of Criminal Charges of Assault (under the Criminal Law Amendment Act) in Seventy Consecutive Cases," of which the following is an abstract.

"The old definitions and nomenclature of sexual crimes—rape and cognate offences—practically abandoned in criminal jurisprudence as being untenable for general application.

"Diminution of severity of punishment has not been followed by increase of the crime.

"Modern substitute of charge of 'criminal assault' more just and more humane, but met by the same difficulties as to conclusive evidence; phrase conveniently elastic has become dangerously so.

"Juvenile prostitution, its alleged prevalence grossly exaggerated, has resulted in Criminal Law Amendment Act (1885), an instance of legislation in a panic.

"Increase of number of charges under the new conditions, and probable proportion of real offences extremely small in proportion to those submitted for investigation."

PATHOLOGICAL AND CLINICAL SECTION.

Friday, October 27th, 1893, the President, Mr. BENNETT MAY, in the chair.

Dr. E. N. Nason shewed a patient, 22 years of age, whom he had trephined three years ago for cerebral abscess, which was localised by focal symptoms to the centre of the left arm and left side of face and tongue. An abscess was found in the suspected area and drained, with the result of a complete recovery. Some six or eight months later the patient had a series of epileptiform seizures, in each case apparently determined by a too free use of alcoholic stimulants. These attacks were preceded by a sensory aura, consisting of a peculiar taste sensation on the left side of the tongue. These attacks have now however ceased, and the young man seems in perfect health.

Dr. Nason also shewed a patient who was shewn a year ago, having at that time symptoms of increased intra-orbital pressure, probably the result of some new growth. These symptoms have very slowly but steadily increased, and the prominence of the eyeball is now very marked. There is no pain, but vision in the affected eye (right) is only about one-fourth normal vision. There is great tortuosity of the veins and considerable swelling of the disc. The cause is probably a slowly-growing sarcoma of the orbit.

Tarsectomy. Living Case.—Mr. Morrison shewed S. P., æt. 15, on whose right foot he had performed tarsectomy. The boy was born with double congenital club foot, and when 10 months old, began a course of upwards of two years' in- and out-patient treatment at a hospital, at the end of which period little or no improvement had been effected, and amputation of the feet was suggested by the surgeon but declined by the parents. After twelve years, without further treatment, the patient was admitted into the Royal Orthopædic Hospital, under Mr. Morrison's care, in May of the present year. The patient presented an extreme condition of symmetrical talipes equinus, the plantar surface of the toes was covered with painful corns, and he could with difficulty hobble about on two sticks. Under $CHCl_3$, division of soft parts subcutaneously, and wrenching, were tried without success on May 2nd. On June 1st the right foot was submitted to the operation of tarsectomy, and the patient was discharged with the wound healed on July 2nd. The result is eminently successful. The lad has a movable ankle-joint and a perfectly plantegrade foot, on which he can stand and jump without any discomfort. The contrast between the two feet is very striking; and it is proposed to deal with the left one similarly at an early date. Mr. Morrison submitted that this case refuted the strong objections raised in certain quarters against tarsectomy, and contended that the operation was not only legitimate, but was the only available treatment, short of amputation, in certain relapsed cases, and in others where the deformity was extreme.

Hemianopsia.—Mr. Eales shewed a case of hemianopsia. M. B., female, æt. 33. Complete right homorymous hemianopia with contraction of remaining half-fields. Central vision normal. Ophthalmoscopic appearances normal. Had an acute illness in March, 1893. Chief symptoms: Severe pain in neck and occipital region; temperature 103° F.; loss of consciousness, lasting three days; no paralysis. Sight failed in both eyes, but returned in a few weeks leaving present permanent hemianopic condition. Contraction of remaining half-fields, probably functional, as it varies in degree at different times of the day. No history of tubercular disease or syphilis. Suffers slightly from "rheumatic" pains.

Lupus with Syphilis.—Dr. Leslie Phillips presented a youth suffering from lupus with intercurrent syphilis. The lupus of the face had been under treatment for some years, with the result that it presented smooth and satisfactory cicatrix with only a few nodules of lupoid tissue at margin.

At the beginning of October it was found that he had recently had a chancre, and he presented a general exanthem.

The interest of the case consists in (*a*) the form of the syphilide and (*b*) the effect of the constitutional syphilis on the lupus patch. The syphilide is a small lichenoid one involving the pilo-sebaceous orifices, somewhat resembling a lichen pilaris, but still more suggesting a lichen scrofulosus. (*c*) On the surface of the scar there have appeared many crusts, most at the margin—that is, in the region where the tubercular tissue was known to be present; but also present in the central parts of the patch where, previously, there was only smooth cicatrix.

Cerebral Tumour.—Dr. Foxwell shewed a brain, with a glioma the size of a hen's egg occupying the right motor area, but not involving the basal ganglia. Its exact contour was impossible to determine, but its centre occupied the ascending frontal convolution. No abnormality was detected elsewhere within the skull. The patient was a woman of 26, who, sixteen years previously, had been knocked down by a hand-cart, and received a severe blow on the upper part of the left parietal region. Three years ago she had a fit, beginning as a "cramp" in the left leg. Similar attacks of Jacksonian epilepsy recurred about once a month. In September, 1892, a weakness of the left side was first noted. In February, 1893, the fits became more frequent, the left paresis increased, and the right side now became affected, she being unable to sew or thread her needle. A little later her sight became dim. In May she was admitted to the Queen's Hospital, and was then found to have double optic neuritis, double ptosis, double facial paralysis, paresis of all four limbs—though this was much more marked on the left side—no sensory change, ankle clonus on both sides, but patellar clonus on the left side only. The question of operation Dr. Foxwell several times discussed with Mr. Marsh; but there did not appear to be sufficient localisation to justify it, especially as the patient improved considerably as to motor power, headache, vomiting, and the fits under rest in bed and 20-grain doses of bromide and iodide of potassium. Towards the end of September she developed pneumonia, and died comatose.

Dr. Simon shewed the intestines from a case of enteric fever.

Mammary Tumours.—Mr. Marsh shewed the following series of specimens:—

1. An adeno-sarcoma, the size of a large walnut, removed from the left breast of a woman æt. 32. She had noticed it for eighteen months, and it was very painful at times and tender on manipulation. The point of interest in the case was that two months after the excision of the tumour she came to the hospital with a similar but smaller growth in the right breast, and with distinctly enlarged glands in both axillæ. There was no recurrence in the left breast.

2. An adeno-sarcoma, the size of a Tangerine orange, removed from the left breast of a girl æt. 19. She had noticed it for two years. It was painless, and had grown slowly until two months before the operation, when it rapidly increased in size.

3. A proliferous cystic adeno-sarcoma, the size of a large orange, removed with the breast of a woman æt. 51. It had been growing for nearly two years, and had almost doubled itself in size in the two months prior to operation. On incising the capsule, some ounces of dark, glairy, tenacious fluid escaped, in which had floated the numerous villous processes coming from the surface of the tumour.

4. A breast with multiple cysts, removed from a woman æt. 39, which, in some of its features, had clinically resembled a scirrhus growth. At the time of operation there were one or two enlarged glands in the axilla, which were not removed.

REVIEWS.

A MANUAL OF MEDICAL TREATMENT OR CLINICAL THERAPEUTICS.*

We venture to predict with some degree of confidence a large measure of success for Dr. Yeo's latest addition to medical literature. In two crown octavo volumes of some six and seven hundred pages severally, with about twenty-eight illustrations, Dr. Yeo has treated the subject of clinical therapeutics in a scientific and, at the same time, thoroughly practical manner.

---

* A Manual of Medical Treatment or Clinical Therapeutics. By I. Burney Yeo, M.D., F.R.C P. Two vols. London: Cassell and Co.

Each volume is divided into parts dealing with disease in sectional arrangement—*e.g.*, Part I., Treatment of Diseases of the Organs of Digestion; Part II., Treatment of Diseases of the Heart and Blood Vessels, etc.; and at the end of each chapter, subdividing these sections, formulæ are added culled from the writings of various authors.

The method on which Dr. Yeo has worked is as follows:—The ailment or disease under notice is briefly described with reference to its etiology, clinical history, course, and pathology characters; and then the treatment of each different stage is passed in review, criticised, and explained. Dr. Yeo is essentially a clinician, and the value of his book is due, in our opinion, to the practical and rational manner in which he shews that therapeutical treatment, based only on theoretical grounds, must mislead, unless read by the light of clinical experience. In illustration, we instance the statement on page 513, vol. ii.: "In spite of all the theoretical denunciations of the use of sodium salts in gout, the gouty, from all quarters of the globe, have resorted, and continue to resort in steadily increasing numbers, to those Continental springs in which the salts of sodium are overwhelmingly prominent." Now this is a fact which cannot be gainsaid; and Dr. Yeo, with true logical insight, proceeds to point out that the results of experimental research are not to be doubted simply because they cannot be explained according to our present views as to the etiology of gout. The point assailed is not the general utility of the sodium salts in gout, but the explanation hitherto advanced as to the action of the alkalies, as solvents of sodium bi-urate in the blood; and this has been shewn to be erroneous. The whole chapter on gout is, in fact, a lucid and succinct *résumé* of our knowledge of the disease up to date, and is well worth reading.

We are particularly pleased to see that Dr. Yeo places on a scientific basis all the methods of treatment he recommends. There is nothing haphazard in his treatment of disease; and we quite agree with what he says with regard to the relief of pain in neuralgia (page 343, vol. ii.). "The employment of mere pain-relieving remedies, while no attempt is made to fulfil causal indications, will often have the effect of doing more harm than good. It may, in some cases, be exceedingly difficult to trace out the true causal relations of the affection, and we may then have to rely chiefly on analgesic measures; but this will not often be the case, and it is generally better to attack a hypothetical cause than to wholly set aside etiological considerations."

Practitioners of medicine who wish to keep up with the times will fully appreciate the non-appearance in Dr. Yeo's book of those frequently-advised methods of treatment which can perhaps be best described by the title of the "cleanse the *primæ viæ*" style of procedure. There is a complete absence of this vague style of writing. When purging is recommended, the most suitable kind of purge, the amount of the drug, and the time it should be given, etc., are all definitely and clearly stated, with reasons for any departure from customary routine, when such departure is demanded by the condition of the patient under treatment. The long hospital experience of the author has enabled him to point out the line of treatment that should be followed, and the indications which should influence the judgment in conditions fraught with special difficulty, where routine, instead of reason, only too frequently decides. We can only point out a few examples in this direction, and select the remarks on the handling of opium in acute and chronic intestinal obstruction, the exhibition of alcohol in typhoid fever and pneumonia, the method of feeding by the rectum, and the indications for operation in typhlitis and appendicitis. All these subjects are treated admirably, with a breadth of view not always met with in medical literature.

Throughout the book Dr. Yeo gives ample evidence that he is a firm believer in the efficacy of drugs when rationally and suitably employed. We notice, however, with pleasure the caution displayed in his remarks on the more recently introduced cardiac tonics and antipyretics, a reserve especially valuable at the present time, when new drugs are vaunted in the most extravagant manner as specifics for all kinds of complaints, only to be abandoned as soon as the advertisements which assist their sale are discontinued. No one reading this work can fail to notice the care expended by the author on matters of detail. Out of many examples we could give, we will only instance the instructions for keeping the bed-clothes smooth under cases of apoplexy in order to avoid the occurrence of bed-sores, excited so readily in old people. Crumbs, etc., are hunted for as a matter of routine, but the presence of irritating folds of night-gown or sheet are not usually thought of by the medical attendant.

The references to surgical methods of treatment which occur here and there, have been supervised by Mr. Watson Cheyne, and are therefore well up to date.

ON GOUT AS A PERIPHERAL NEUROSIS.*

In the volume before us Dr. Wade draws attention to certain clinical facts which in his opinion support the view that the local manifestations of gout are directly dependent upon an inflammatory affection of the nerves supplying the part, the inflammation being in turn dependent upon the blood dyscrasia and immediately excited by some local injury, or under certain circumstances some central nervous influence. He has been led to these views by a series of observations and reflections which we will do our best to summarise. He has been long familiar with the fact that the tenderness of the parts after an attack of acute gout is not equally distributed, but is "patchy," and these limited areas he has found in some cases to be in definite narrow lines corresponding with known nerves. Thus he has met with this tenderness in a line crossing the foot from "the base of the great toe to the centre of the bend of the ankle," which corresponds to a branch of the peroneal nerve (Swan); he also refers to tenderness over the ulnar nerve in the neighbourhood of the pisiform bone in a case of hypothenar gout, and also of tenderness over the wrist between the tendons of the two extensors of the thumb in a case of gout of the ball of the thumb. Further, the chronic painfulness of the great toe joint on walking he has found from careful examination of his own case to be situated not in the joint itself, but in one or two lines of tenderness occupying the site of two branches of the internal plantar nerve which lie one to the outer side and one to the inner side of the plantar aspect of the great toe. He has made similar observations on the chronic painfulness of the heel in gout.

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* On Gout as a Peripheral Neurosis. By Willoughby Francis Wade, Fellow of the Royal College of Physicians of London, etc. London: Simpkin, Marshall, and Co. 1893.

In the next place, he lays stress on the importance of injury in localising an attack of gout, and draws attention also to the influence of simple *pressure* to determine an attack, also of cold and wet.

He remarks here—"Is it not the case that external agencies have not been sufficiently regarded as gout producers. That these cases have been looked upon rather as exceptions and oddities without any special or deep significance? If so, that insufficient enquiry has been made into the minute history of gouty cases in respect to previous or coincident injuries or other external influences? Finally, if so, might not a more constant and minute enquiry reveal a much more constant relation between such external circumstances and the appearance of gout in a particular part?" We have quoted this at length, because the point is one of great clinical interest and importance, and we are assured that there is a failure to recognise not only the traumatic origin of gout but the gouty nature of many injuries.

Dr. Wade proceeds in the next chapter to describe what is meant by neuritis following Erb, its pathology, morbid anatomy and symptomatology. He points out that gouty neuritis is recognised already, and that inflammation of neighbouring organs is "a very common cause of neuritis" (Erb). The question is whether the neuritis in gout precedes the arthritis or follows it. To settle this question he appeals to gouty members of the medical profession. "The point to be determined is this: Is there tenderness in the skin or in some of the nerve trunks surrounding the toe joint at a time when there is no tenderness in the toe joint?"

He thinks the view that the mischief begins in the nerves and not in the joint is supported by the peculiar localisation of the attacks, which corresponds to parts in which the nerves are superficial and exposed to external influences; he also adduces, as a further argument, the effect of cold or colchicum to cut short an acute attack, which is difficult to explain if the inflammation is due to the presence of uric acid, and he might have added that the transient character of an attack of acute gout and the frequent absence of any anatomical change, make it impossible to accept the view that the process is identical with what is ordinarily understood by inflammation.

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New Books, etc., Received.

Ophthalmic Nursing. By SYDNEY STEPHENSON, M.B., F.R.C.S. Edin. With 61 illustrations. London : The Scientific Press, Limited.

Outlines of Obstetrics ; a Syllabus of Lectures delivered at the Long Island College Hospital. By CHARLES JEWETT, A.M., M.D. Edited by HAROLD F. JEWETT, M.D. Philadelphia : W. B. Saunders.

A Treatise, Practical and Theoretic, on Cancer and the Cancer-process. By HERBERT SNOW, M.D. Lond., Surgeon to the Cancer Hospital. London : J. and A. Churchill.

Essentials of Minor Surgery, Bandaging, and Venereal Diseases, arranged in the form of questions and answers. Prepared especially for Students of Medicine. By EDWARD MARTIN, A.M., M.D. Second edition, revised and enlarged. 78 illustrations. Philadelphia : W. B. Saunders. 1893.

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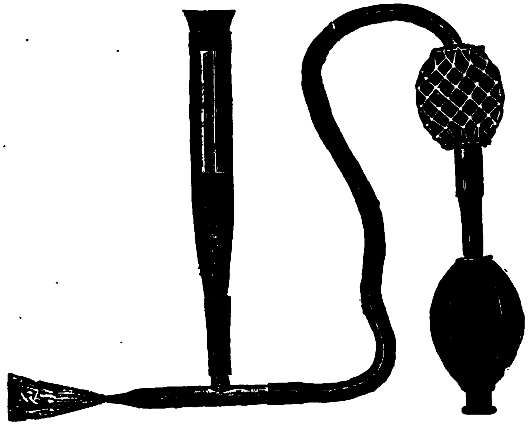

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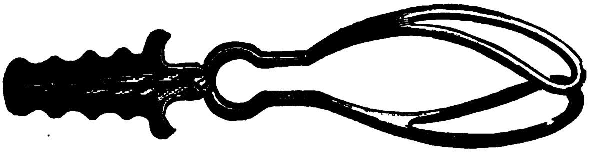

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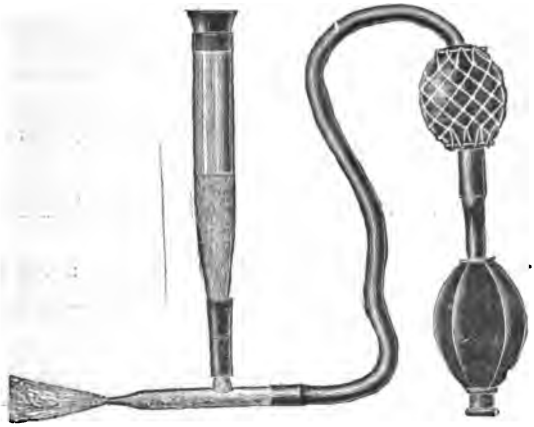

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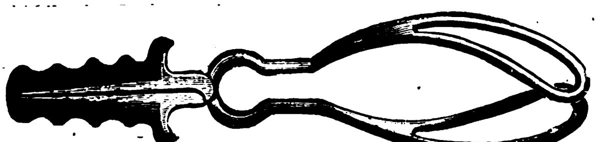

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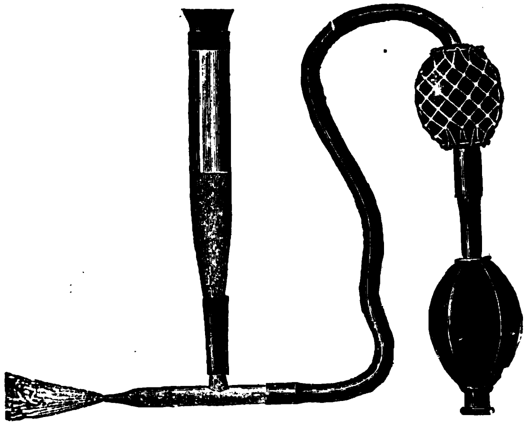

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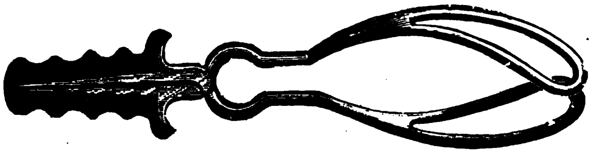

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